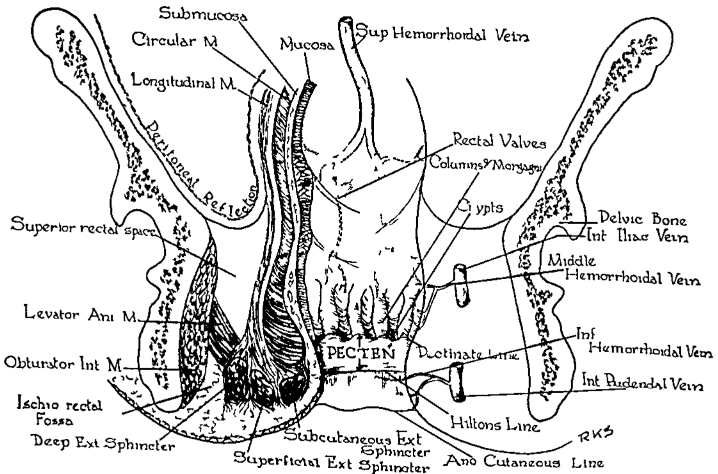
ESSENTIALS
OF
CLINICAL
PROCTOLOGY



Schematic Longitudinal Section of the Anorectum

Essentials of
CLINICAL PROCTOLOGY

Third Edition

MANUEL G. SPIESMAN, M.D., B.S., LL.D., F.I.C.P.

Associate Professor of Proctology, Chicago Medical School
Chief of Proctology, Mt. Sinai Hospital Rectal Clinics
Chief of Proctology, Edgewater Hospital
Former Head of the Cook County Hospital Rectal Clinic

AND

LOUIS MALOW, M.D., B.S., F.A.C.S.

Associate in Surgery, Chicago Medical School
Proctologist, Grant Hospital
Attending Staff Surgery, Edgewater Hospital
Rectal Clinic, Mt. Sinai Hospital
Diplomate, American Board of Surgery



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Contents

Preface

IN 1946 I PUBLISHED a book entitled Essentials of Clinical Proctology. This volume the outgrowth of lectures on diseases of the anus rectum and colon given to medical and postgraduate students, covered in outline form only the essentials of the entire subject of proctology, from simplified embryology and anatomy to preoperative and post operative proctologic care. Instead of giving many prescriptions and technics for the treatment of each condition—which would have been confusing and time-consuming to a busy physician—I included only the prescriptions medicinals, office treatment home treatment and operative technics which I had found most satisfactory over a period of twenty years. Each chapter also included practical diagnostic aids, accompanied by simple teaching schematic drawings. The book was acclaimed as a rapid and convenient reference of all essential practical and usable proctologic material.

However, constant progress and changes, not only in proctology but in all fields of medicine, make periodic re-evaluation necessary and this newly revised third edition is just such a re-evaluation. The same principles that were followed in the original book however have again been adhered to.

A complete chapter on the injection treatment of hemorrhoids has been added that gives the exact simple injection technic, injection solution and rules for "what not to do." Also added is a chapter on pediatric proctology, steps and illustrations in the performance of a sigmoidoscopic examination, a complete chapter on ulcerative colitis giving the diagnosis and most recent treatment for each type, a new chapter on hydradenitis suppurativa, and a completely revised chapter on pruritus ani with new drugs and schematic drawings for all steps in the "clover leaf" operation for the intractable condition. There is also a revised chapter on the treatment of postoperative complications, a complete chapter on amebiasis and its relationship to pruritus ani, a new simple histo-pathologic classification of polyps and their treatment, and a chapter on coccygodynia and proctalgia fugax showing the relationship and treatment of both of these frequently undiagnosed, painful rectal conditions. The reader will find sections on making anorectal operations less painful, the "critical angle" and its relationship to fistula operations and anorectal incontinence, and the fissure pentad (the five conditions

usually associated with an anal fissure) This edition contains the most complete dissertation in the medical literature on the pecten band pectenosis and pectenotomy, the last two being a condition and a treatment necessary to understand if proctologic diseases are to be properly diagnosed and treated A brief resume of useful diagnostic and therapeutic procedures for the treatment of carcinoma of the rectum and colon has been included, and, last but not least, a schematic drawing of the authors treatment drawer with a list of all office medicinals found valuable by the writers over a period of thirty years

I wish to give credit and thanks to my associate and partner, Dr Louis Malow, who, through his collaboration contributed so materially to the tremendous task of making this third revised edition possible I also wish to express gratitude to Mrs F McKeown and Mrs G K Jones of the University of Illinois Medical Art Department, who prepared new illustrations, including two color plates on ulcerative colitis and amebic colitis, and to Miss Ruth Kiewe, our secretary, who spent innumerable hours typing and retyping new material for this book Finally, thanks are extended to our publisher, Grune & Stratton, who have again aided us in the editing and printing of this third edition

MANUEL G SPIESMAN M D

Chicago Illinois
January 1957

Chapter 1

EMBRYOLOGY AND APPLIED ANATOMY OF THE ANORECTUM

EMBRYOLOGY

THE rectum and anus are derived from three distinct embryonic structures the hindgut the pouch developed from the hindgut called the postallantoic gut, and the proctodeum

The caudal expansion of the hindgut is the cloaca The rectum proper is derived from the cloaca The cloaca gives off the allantois which later forms the genito urinary system and the postallantoic gut which forms the balance of the rectum and anus The postallantoic gut grows downward and outward to meet the proctodeum which begins to dimple in toward the postallantoic gut In this process the anterior or cloacal opening leading to the allantois gradually closes dividing the rectum from the genito urinary tract and the remainder of the pelvic viscera

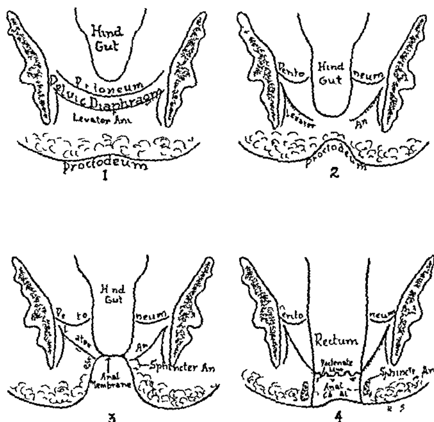
The postallantoic gut (termination of the hindgut) continues to grow outward to meet the proctodeum and in about the fourth intra uterine month their union forms a septum known as the anal membrane This membrane ruptures forming communication between the bowel and the exterior Where this membrane ruptures there results a very important anatomical landmark known as the pectinate line (from the Latin *pectinatus* combed, meaning like the teeth of a comb) (figs 1 to 1) Should this membrane not rupture, one of the types of imperforate anus results (chap 2)

APPLIED ANATOMY

To make the anatomy of the anorectal region more interesting and applicable to diagnosis and treatment the writers have attempted to explain the clinical and surgical significance of many of the anatomical structures in this area (see Frontispiece)

As stated above the hindgut grows outward to meet the proctodeum which invaginates inward It is where they meet and where the anal membrane finally ruptures that we find the pectinate line The blood

supply, the nerve supply, and the lymphatic supply, as well as the histological structure of the epithelium, are different above and below this line. A clear understanding of these differences will aid one materially in the diagnosis and treatment of proctologic conditions.



SCHEMATIC LONGITUDINAL SECTION OF THE ANORECTUM

FIGS 1-4 EMBRYOLOGICAL FORMATION OF ANORECTUM (after Pennington)

Fig 1 Formation of rectum and anus

Fig 2 Hindgut piercing the pelvic diaphragm and the proctodeum

Fig 3 Communication between hindgut and proctodeum forming the anal membrane

Fig 4 Communication between hindgut and proctodeum completed and formation of the pectinate line

Pectinate Line.—The pectinate line is found about one to one and one half inches above the anal opening and it divides the postallantoic gut (entoderm) from the proctodeum (ectoderm). It is the dividing line for several important anatomical systems, namely, the vascular system, the nervous system, and the lymphatic system. Above the pec

tinate line are found the superior hemorrhoidal vessels while below are the inferior hemorrhoidals Above the pectinate line the structures are supplied by the autonomic system while below by the cerebrospinal nerves Above the pectinate line the lymph drainage is to the deep rectal pelvic and abdominal glands below, the lymph drainage is mostly to the inguinal glands Above the pectinate line the epithelium is columnar and below it is transitional and squamous

Anal Valves and Crypts —Arising from the pectinate line are a number of irregular semilunar folds which are known as the anal valves These form a number of small pockets known as the crypts of Morgagni These crypts are the common cause of anal pain as well as the origin of abscesses and fistulas

Hilton s Line —The lineal interval between the external and internal sphincter muscles is known as Hilton s white line This is often referred to as the mucocutaneous junction because below this line the anal canal is lined by squamous epithelium indistinguishable from ordinary skin while the area between Hilton s line and the pectinate line is lined by transitional or modified anal skin

Pecten —Between Hilton s line and the pectinate line is an area known as the pecten or pecten area of Stroud (fig 5) which varies in width from one third to one half inch and is lined by transitional epithelium differing from the columnar cells above and the squamous epithelium below The pecten is therefore neither skin nor mucous membrane and is usually referred to as modified anal skin

Columns of Morgagni —Above the pectinate line are longitudinal folds of the anorectal mucosa known as the columns of Morgagni which are lined by columnar cells

Vascular System —Four blood vessels supply the anorectum superior middle inferior hemorrhoidal and occasionally a branch from the middle sacral Above the pectinate line are found the superior hemorrhoidal vessels which penetrate the muscular coat enter the submucous tissue and supply three definite areas with main branches and as many as five secondary areas with secondary branches These primary venous branches when varicosed produce the three primary hemorrhoids located above the pectinate line in the right anterior right posterior and left lateral quadrants which are the areas removed during hemorrhoidectomy Secondary hemorrhoids may develop in between these definite

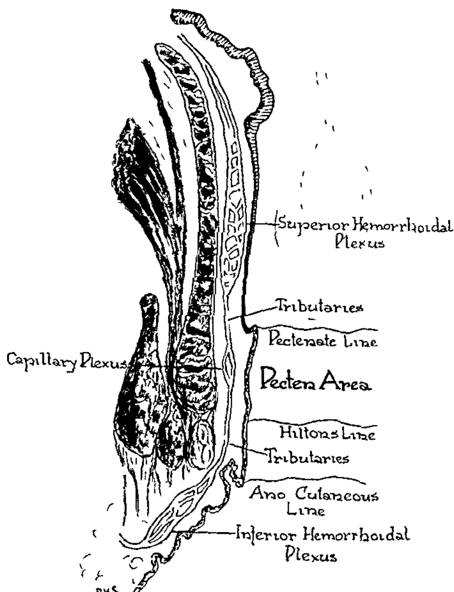


FIG 5 LONGITUDINAL SCHEMATIC SECTION OF THE ANORECTUM SHOWING THE ANATOMICAL LANDMARK THE PECTEN AREA

The pecten area lies between the pectinate line and Hilton's line This is the area where pathological pecten band develop

locations according to the secondary branches which supply this area (see fig 6) Below the level of the pecten area lies a venous ring which is drained by the inferior hemorrhoidal plexus When hemorrhoids develop in this area they appear in three definite forms the chronic forms are the anal verge symptomless bluish varicosities known as the external

varicose hemorrhoids and the integumentary hemorrhoids (skin tags) *the acute form* is known as the thrombotic pile or hematoma ani The internal hemorrhoidal area (above the pectinate line) is drained by the portal system and the external hemorrhoidal area (below the pecten) by the inferior vena cava (fig 7) so that metastases from a carcinoma

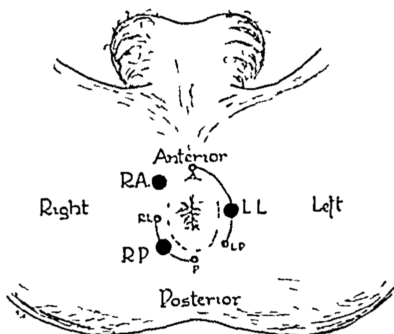


Fig 6 Location of Hemorrhoids

Schematic cross section of rectum just above pectinate line showing position of main hemorrhoidal vessels and their branches The solid black dots indicate the main branches R.A., R.P., and L.L., while the shaded dots indicate the location of their branches Varicosities of the main branches form the three primary hemorrhoids R.A., R.P., and L.L., while secondary hemorrhoids in the Anterior Posterior R.L. and L.P quadrants may develop from the primaries The R.A hemorrhoidal vessel has no branches and develops no secondary hemorrhoid

above the pecten is to the liver while below the pecten it may enter the general circulation and appear anywhere

Nervous System —Above the pectinate line the anorectum is supplied by the autonomic nervous system and the sensation of pain is absent which explains why carcinoma of the rectum develops to a considerable size without producing pain It also explains why internal hemorrhoids

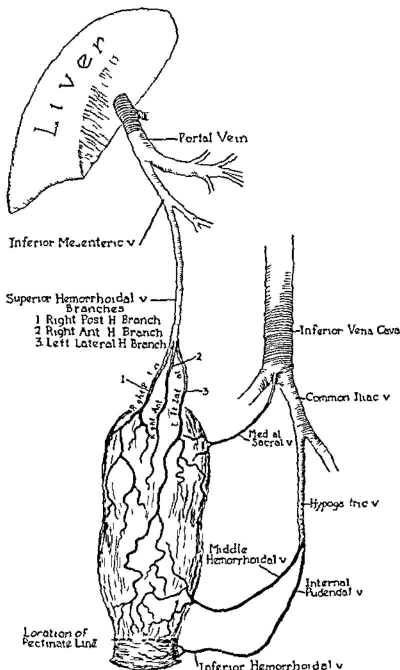


FIG 7 THE VENOUS SUPPLY TO THE ANORECTUM

Schematic drawing showing the origin and insertion of the venous blood supply *to the anorectum Note the three primary branches of the superior hemorrhoidal vein* 1 2 and 3 The right anterior branch is a single branch without any off hoots while the right posterior and left lateral branches give off several offshoots

cause bleeding but no pain It is only when hemorrhoids prolapse and invade the sensory area below the pectinate line that pain is experienced Below the pectinate line all pathological lesions such as cryptitis papillitis fissure in ano abscess thrombotic pile, and carcinoma are associated with pain

The nerve supply to the anal canal is from the sacral and coccygeal plexuses The hemorrhoidal branch of the internal pudic supplies the lateral walls the perineal branch of the pudic supplies the anterior quadrant and is known as the anterior sphincterian nerve, the fifth and sixth sacral and coccygeal branches form the lesser sphincterian nerve or the nerve of Morestin These nerves and their location are important to keep in mind in giving local anesthesia (fig 8) The sensory nerves of the anal region are intimately connected with the nerve supply of the neck of the bladder urethra vagina and inner side of the knee and hip joint and are capable of producing disturbances in these parts when

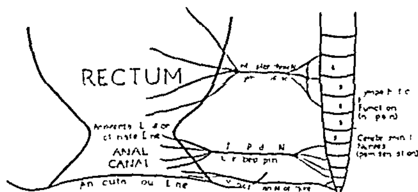


Fig. 8 Nerve Supply to Anorectum

Note that the sensory nerve area ends at the pectinate line No pain sensation is felt above the pectinate line except reflex pain from the coccyx prostate or female organs. This explains the lack of pain in polyp early carcinoma and internal hemorrhoids.

the anal canal is affected An illustration of this is the difficulty of urination associated with anorectal abscess or anorectal operations

Lymphatic System—The pecten is also the dividing line of the lymphatic system Above the pecten the lymphatics drain to the perirectal sacral iliac and aortic glands below the pecten drainage is to the

inguinal glands This explains the inguinal metastasis in carcinoma of the anal opening and the inguinal adenitis in venereal ulcers of the anal verge

Anal Canal and Rectum —The anal canal, according to the American school, extends from the anal opening to the pectinate line a distance of about an inch to an inch and a quarter The *rectum* extends from the anorectal line to the rectosigmoidal juncture at about the level of the third sacral vertebra and is about five to seven inches in length The anal canal points upward and anteriorly, while the rectum follows the hollow of the sacrum, pointing upward and backward This is important to keep in mind when passing a proctoscope Immediately after the anal canal is passed the scope should be pointed backward to avoid striking against the prostate or uterus The rectum below the peritoneum is composed of mucosa submucosa, muscularis and fascia propria, above the peritoneal reflection the outer layer is serosa The muscular coat is composed of an inner circular and an outer longitudinal layer The thickening of the circular muscles of the lower rectum down to Hilton's line forms the internal sphincter, and the taenia coli of the colon fuse at the rectum and surround the entire tube The external sphincter unlike the internal sphincter is supplied by the cerebrospinal nerves It is under the control of the will Hilton's line is the dividing line between the two sphincters Crescentric folds which stand out from the rectal wall are three in number, encircle from one third to two thirds of its circumference and are known as the valves of Houston (fig 9) Their exact function is as yet not definitely understood In front of the rectum lie the prostate seminal vesicles, vas deferens urethra, and prostate in the male, in the female, the vagina uterus, and adnexa There is no peritoneum on the posterior surface of the rectum The lateral portions of the upper rectum are covered by peritoneum to a slight extent and the upper third of the rectum is covered by peritoneum on its anterior aspect In the male the distance from the perineal skin to the reflection of the peritoneum is from two and one half to three inches In the female the cul de sac comes down even lower and may be as little as one and one half inches away This is important to keep in mind in procidentia recti where the peritoneum in the female may be included in the prolapse and excision of this mass may result in peritonitis and death Also in passing bougies sigmoidoscopes, etc, or in coagulating tumors on the

anterior wall of the rectum the peritoneal cavity may be entered and result in a fatality

Muscles of the Anorectal Region.—The new conception of the external sphincter according to Milligan and Morgan is that it is composed of three parts namely (1) sphincter ani externus subcutaneous (2)

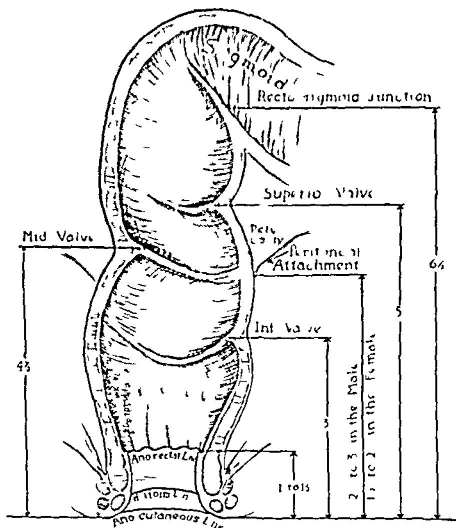


FIG 9 ANO RECTO SIGMOID

Longitudinal section of the anus rectum and sigmoid showing the various approximate distances of the anocutaneous line to the pectinate line the three rectal valves the distance to the peritoneal reflection and to the rectosigmoid junction

sphincter ani externus superficialis, and (3) sphincter ani externus profundus The first and third portions are annular muscles not attached to the coccyx, the second portion is elliptical in shape and is attached to the coccyx (see fig 10) In some cases there are only two separate portions the two deeper layers being then inseparable The first portion, the sphincter ani externus, is easily seen and felt beneath the skin of the anus and lies in the same plane as the internal sphincter This is the portion of the sphincter which has heretofore been taken for the entire external sphincter and is the portion most commonly cut in fistula operations This is important to understand and will easily explain why it does not matter at what angle this portion of the sphincter is cut Rarely

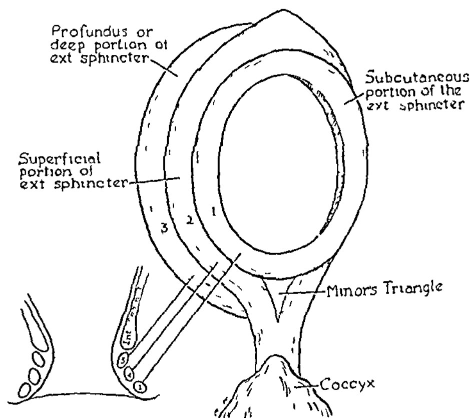


FIG 10 EXTERNAL SPHINCTER

Schematic drawing showing the three doughnut shaped portions of the sphincter muscle attached to each other *Note that the second portion* (*Superficial External Sphincter*) attaches to the coccyx forming a space known as Minor's Triangle

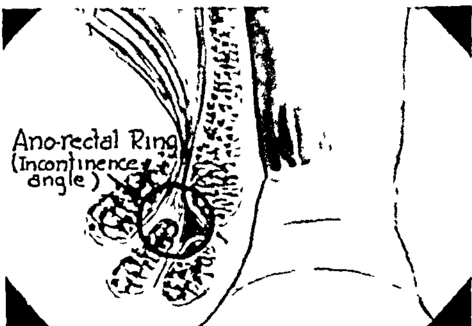


FIG. 11 ANORECTAL RING

Fig 11 The anorectal ring is a fibromuscular band composed of the junction of (1) the internal sphincter (2) the longitudinal muscle (3) the puborectalis portion of the levator ani and (4) profundus portion of the external sphincter Cutting all of the components of this ring produces incontinence in fistula operations.

is more than the subcutaneous sphincter cut although occasionally the superficial sphincter ani externus is cut and very rarely the profundus is divided The second and third portions of the external sphincter encircle the longitudinal muscle and the internal sphincter ani and join with the puborectalis portion of the levator ani to form the anorectal ring (fig 11)

Internal Sphincter—In the region of Hilton's white line there is a sudden thickening of the circular muscles of the lower rectum to form the internal sphincter The internal sphincter is composed of smooth muscle fibers and is therefore an involuntary muscle

Levator Ani Muscle—Next to the external sphincter the levator ani is the most important rectal muscle both together having complete control of defecation It is composed of three main portions—the iliococcygeus the pubococcygeus and the puborectalis—all together forming the pelvic diaphragm During defecation the levator ani and

the external sphincter muscles are relaxed and the feces are expelled by the bowel, assisted by the voluntary compression and contraction of the abdominal muscles When the fecal mass is extruded the puborectalis portion which surrounds and supports the upper portion of the anal canal then compresses its sides and draws the posterior portion of the opening toward the pubis the anterior portion of this section of the anal canal remaining fixed by the recto urethral muscle The external sphincter then completes the act by closing the anal canal

Incontinence and the Anorectal Ring—The anorectal ring is situated at the junction of the anal canal and the rectum It is a fibromuscular band composed of (1) the lower portion of the internal sphincter, (2) the longitudinal muscle, (3) the puborectalis portion of the levator ani and (4) the profundus portion of the external sphincter (fig 11) The posterior half of the ring is easily recognized as a cliff, beyond which the examining finger drops off into the beginning of the rectum Only if this entire ring is cut will incontinence occur All of the anal sphincter muscles below this ring may be cut at any angle without loss of control In the anterior half of the ring the deep external sphincter alone stands as the last guardian of continence That is why third degree tears are associated with complete incontinence

Ligaments—The anococcygeal and lateral ligaments are the main ligamental support of the anorectum The anococcygeal is a cordlike ligament which extends from the tip of the coccyx to the sphincter muscle An ischiorectal fistula on one side frequently burrows beneath this ligament reaching the opposite side of the anorectum, and forms what is known as a horseshoe fistula The connective tissue attachments upon either side of the rectum, just beneath the lateral reflections of the peritoneum are known as the lateral ligaments They help support the rectum and contain the middle hemorrhoidal vessels, which are important to keep in mind in resections of the rectum

Chapter 2 CONGENITAL MALFORMATIONS AND PEDIATRIC PROCTOLOGY

Proctologic disorders in infants and children, although fairly common have not been stressed sufficiently except in the field of congenital malformations Many conditions can be treated simply and will prevent later complications or problems

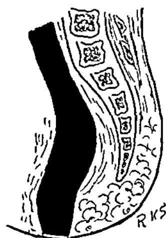
Anatomically the rectum in infancy is straight the sacral curve developing later in childhood therefore a proctologic examination is not as difficult and formidable as many men envision

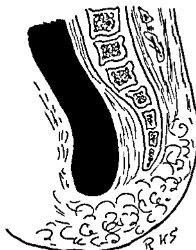
All newborn infants should be examined for congenital malformations of the rectum which entails merely inspection of the anal opening and digital examination u ing the little finger If during infancy or childhood a proctologic examination is necessary it should include in pection digital examination anoscopy and sigmoidoscopy After the infant is 3 or 4 months of age digital examination can be performed with an index finger and we believe no special small caliber instruments are necessary except in special cases such as strictures We u e the $^3_4$ Brinkerhoff anoscope and the $^3_4$ sigmoidoscope and have had no difficulties except in stricture cases as mentioned The anoscopic examination is performed in either the lithotomy position or the lateral Sims position and the sigmoidoscopy in either the Sims position inverted over the edge of a table or over the mother s lap Assistance is mandatory either from the mother or father or nurse to hold the child still and prevent po sible injury since these patients are extremely agile and perforation of the bowel is not unlikely Preparation for examination is the same as for adults a Fleet enema given one to two hours before examination and a mild sedative if necessary

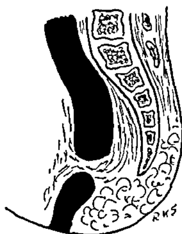
Development of Congenital Malformations

It has been shown in the section on applied anatomy and embryology that the hindgut grows outward to meet the proctodeum, which invagi









FIGS 12-15 TYPES OF ANAL AND RECTAL ABNORMALITIES (after Ladd and Gross)

Fig 12 Incomplete rupture of anal membrane or stenosis at a point 1 to 4 cms above anus

Fig 13 Imperforate anus Obstruction due only to persistent membrane

Fig 14 Imperforate anus but with rectal pouch separated from anal membrane Rectal pouch ended blindly either in pelvis or above pelvis

Fig 15 Anus and pouch normal Rectal pouch ended blindly

nates inward When they meet, continuity between the intestines and the exterior results If this fails to occur however malformations of the anorectum follow Such malformations fall into four main classes (figs 12 15)

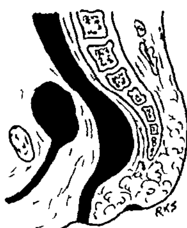
1 *Congenital narrowing of the anal canal*

2 *Imperforate anus*, in which the septum divides the anus from the rectum

3 *Imperforate rectum* in which a portion of the tube is missing altogether



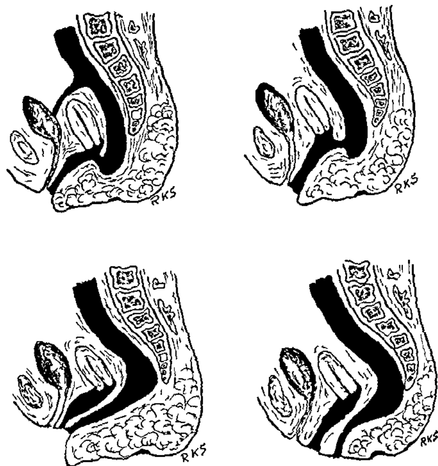




Figs 16-18 Types of Rectal Fistulas in Males (after Ladd and Gross)
Fig. 16 Rectovesical
Fig. 17 Recto-urethral
Fig 18 Rectoperineal

4 *Complicated Varieties* By complicated varieties we mean restricted partial function in which there is an internal or an external ectopic opening In males the most common internal opening is usually in the anterior perineum at the base of the scrotum In females the internal communication is with the vagina, if external, the opening is almost always at the posterior edge of the vulvovaginal orifice (figs 16-22)

There are a great many variations of each of these classes of mal formations The frequency of the anomalies among children is small, occurring about once in 10,000 births



FIGS 19 22 TYPES OF RECTAL FISTULAS IN FEMALES (after Ladd and Gross)
Fig 19 Rectovesical and Rectovaginal
Fig 20 Rectovaginal
Fig 21 Recto Fossa Navicularis.
Fig 22 Rectoperineal

Classification

Yeomans has divided anorectal anomalies as follows

Imperforate anus (no function)

1 The proctodeum does not invaginate at the anal site and the anal canal is absent

2 Rudimentary or undeveloped anus partly or completely occluded by persistent anal membrane

Imperforate rectum (no function)

1 Postallantoic undeveloped intestine does not descend and ends blindly without function

2 Postallantoic intestine descends but grows backward out of alignment with the proctodeum the intervening tissues are not absorbed and there is no function

Complicated varieties (restricted partial function)

1 Urorectal partition of the cloaca arrested rectum communicating with the urethra bladder uterus, vagina or perineum anus is usually completely closed

2 Urogenital outlet in rectum ureters or vagina opening into rectal cavity anus and rectum normal

3 Persistence of neurenteric canal with opening of postanal gut in sacral region

Imperforate Anus

Diagnosis—This is the most common form of anal anomaly The symptoms are failure of appearance of meconium and development of symptoms of intestinal obstruction Where there is no evidence of an opening the diagnosis is facilitated by placing the patient in an upside down position to permit the gas trapped in the colon to rise upward Also a penny can be placed at the spot where the anal opening should be and held in place by adhesive tape This will further aid in determining the approximate distance between the air bubble and supposed canal opening An x ray will then reveal the extent of the imperforation in this type and other types to be discussed

Treatment—The treatment is surgery If the rectal pouch as seen on x ray is over one half inch from the lead marker or penny an abdominal exploration will most likely be necessary, whereas if it is less than one half inch an incision through the anal dimple with dissection of the rectal pouch (which is brought down and anastomosed

to the skin, is the simplest procedure Postoperatively, digital dilatations of the anorectum plus daily irrigations are necessary to alleviate constipation Where there is membranous occlusion of the anus treatment is a simple cruciate incision through the membrane and trimming of the edges

Prognosis—Prognosis is usually good

CONGENITAL NARROWING OF THE ANAL CANAL

Diagnosis—There is an opening but the anal canal is of small caliber and is fibrotic Symptoms *develop insidiously with gradually increasing* constipation, until finally defecation becomes difficult and very painful

Treatment—Operative treatment is rarely necessary Progressive dilatation will suffice until the child is older and then a posterior proctotomy should be performed, followed by the twice-daily use of cod liver oil ointment (Desitin) until the wound is healed

Prognosis—The prognosis is fairly good

IMPERFORATE RECTUM

Diagnosis—The diagnosis is made on the symptoms of failure of *appearance of meconium and subsequent symptoms of intestinal ob*struction X ray and penny as previously described establish the *extent of the rectum (see Imperforate Anus)*

Treatment—Surgery should be performed at once If the rectum is *not reached by a perianal dissection, a colostomy should be performed*

Prognosis—The prognosis is fair

COMPLICATED VARIETIES

INTERNAL COMMUNICATIONS

Diagnosis—These anomalies constitute about 10 per cent of anorectal malformations with vaginal communications *heading the list Chronic* intestinal obstruction with varying degrees of ileus and subsequently, cystitis and *fatal ascending pyelonephritis, usually follows* Passage of meconium only during urination and thoroughly mixed with the urine *signifies an opening into the bladder* Continuous intermittent passage of meconium from the urethra strongly suggests a urethral communica*tion (figs 16 22)* This *rule is not* infallible

Treatment—Surgery should be performed at once unless the outlet

is sufficient to drain the rectum adequately Communication with the bladder demands immediate surgery because of fatal ascending urinary infections

Operations —(1) Perianal dissection (2) Abdominal exploration and separation of the two organs (3) Primary colostomy followed later by plastic operations This latter method is the method of choice

Prognosis —The prognosis is poor Communications with the bladder are the poorest risks Communications with the urethra are less serious and communications with the vagina are still less serious The age at which radical plastic measures can best be accomplished is between 5 and 10 years

External Communications

Diagnosis —The external opening is in the perineum base of scrotum prepuce or vulvovaginal orifice The opening is inadequate for the satisfactory drainage of the rectal pouch

Treatment —Perineal dissection is indicated if there is a bulging of the rectal pouch at some point in the perineum or if no symptoms of intestinal obstruction are present Primary colostomy should be performed if toxic symptoms are present

Prognosis —The prognosis is not good but it is better than with those having internal communications

Pediatric Proctology

Congenital Megacolon

Congenital megacolon or Hirschprung s disease is a disease of infancy in which there is tremendous dilatation of the colon associated with abdominal distention (pot belly) (fig 23) and severe constipation or obstipation In the past treatment was varied and usually unsuccessful but since 1948 when Svenson described the pathology of this condition as an absence of Auerbach s and Meissner s plexuses in the rectum and recto-sigmoid regions the treatment and results have been good In those cases in which the colon is dilated up to a point of narrowing in the recto-sigmoid a biopsy of the rectal mucosa triangular in shape taken deep enough to include the muscular layers is performed and the specimen examined for the ganglion cells (20 25 sections should be studied) If cells are absent Svenson s operative procedure consists of excision of the aganglionic segment of rectum and recto sigmoid

stools is essential to prevent straining Mineral oil by mouth or by rectal instillations nightly to prevent trauma to the veins, plus several injections of a sclerosing agent such as 5% phenol in oil are usually sufficient to control the hemorrhoids Surgery is very rarely necessary

PRURITUS ANI

Itching about the perianal area has been, in our experience, due to pinworm infestation or food allergy Eradication of the pinworms is accomplished by oral medication such as Terramycin or piperazine citrate syrup (Antepar) The dosage is as follows *Terramycin* under 5 years of age, ½ Gm daily, 5 to 10 years of age, 1 Gm daily, over 10 years of age, 2 Gm daily Piperazine citrate syrup (Antepar) 20 mg per pound of body weight not exceeding 3 Gm In the treatment of pinworms the entire family should be given medication Allergy to food is diagnosed by exclusion diet with observation of the resulting symptoms

CONSTIPATION AND DIARRHEA

This is primarily a pediatric problem concerning dietary management with proper intake of fluids and bowel training for good habits Allergy to foods may be a cause of diarrhea and abdominal cramps Acute intestinal infections such as paratyphoid and salmonella always have to be considered in cases of constipation or diarrhea or both and stool should be examined for ova and parasites

Chapter 3

DIFFERENTIAL DIAGNOSIS OF ANORECTAL CONDITIONS

To understand and interpret anorectal complaints one should review a few of the practical clinical and anatomical facts of the involved area The following brief review should simplify the differential diagnosis of common anorectal symptoms

Applied Anatomy

During fetal life the proctodeum pushes up and the hindgut pushes down Where the two meet, a membrane known as the anal membrane forms During the fourth month of intra uterine life this anal membrane ruptures forming a communication between the bowel and the exterior Where this membrane ruptures an irregular line remains this is known as the pectinate line or dentate line A clear understanding of this line and its contiguous structures simplifies the diagnosis and treatment of the majority of anorectal conditions

Blood Supply

The pectinate line is an important landmark dividing ectoderm from entoderm It is the dividing line between the superior hemorrhoidal vessels which form internal hemorrhoids and the inferior hemorrhoidal vessels which form external hemorrhoids Above the pectinate line the area is drained by the portal system and explains metastases to the liver Below this line the drainage is via the inferior vena cava and explains metastases to any part of the body

Nerve Supply

Above the pectinate line the rectum is supplied by autonomic nerves while below this line it is supplied by sensory nerves This explains why carcinoma of the rectum may develop to a considerable size

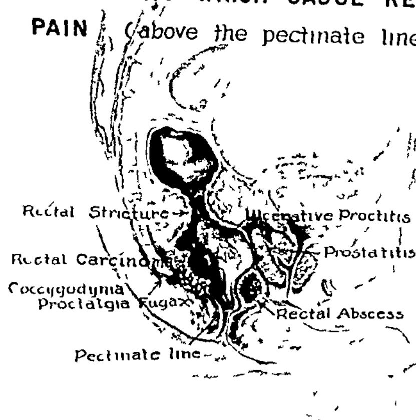


FIG 25 CONDITIONS ABOVE THE PECTINATE LINE WHICH CAUSE RECTAL PAIN

RECTAL PAIN (ABOVE THE PECTINATE LINE) (fig 25)

Common causes

Coccygodynia pain on sitting, periodic spasm (Proctalgia Fugax)
Prostatitis (rectal pain and urinary symptoms)

Uncommon causes

Advanced carcinoma (rectal discomfort and backache)
Gynecologic conditions (rectal pain and "gyne" complaints)
Proctitis (urgency and frequency of b m 's)
Fecal impaction (obstipation and rectal discharge)
Stricture (obstipation and rectal discharge)

BLEEDING

Common causes

Hemorrhoids (toilet water colored red)
Carcinoma (frequency of b m s and bloody mucus)
Fissure in ano (blood seen on toilet paper—toilet paper type)
Ulcerative proctocolitis (urgency frequency blood and pus)
Polyp polyposis polypoidosis (blood stained mucus in stool)

Uncommon causes

Purpura	Tuberculosis
Stricture	Foreign body
Typhoid	Intussusception
Uremia	Ulceration of Meckel's diverticulum
Ileitis	Gastro-enterocolitis

SWELLINGS

Common causes

Thrombotic pile (bluish hard swelling covered by skin)
Abscess (diffuse reddish swelling)
Skin tags
Sentinel pile (skin tag just distal to fissure)
Prolapsing pile (covered by mucous membrane)
Strangulated pile (a ring of thrombotic piles and edematous tags)

BURNING

Common causes

Cryptitis (burning with stool)
Papillitis (burning with stool)
Fissure in ano (burning and pain with stool)
Fistula (burning with stool)
Proctocolitis (frequency of stool and burning)

Uncommon causes

Venereal ulcer
Fistulous papule (small papule with discharging opening)
Sebaceous cysts (large black heads)

Uncommon causes

Carcinoma of the anus (fixed hard ulcerated swellings)
Verrucae (warts) (like warts elsewhere)
Lipomas (like fatty swellings elsewhere)

ITCHING

Simple Pruritus (mild dermatitis around anal orifice) as a result of

Discharge from

Fistulous opening (common)
Vaginal discharge (common)
Postoperative discharge (common)
Fissure in ano (common)

Parasitic

Yeast (especially following Aureomycin or Terramycin medication)
Amebiasis (common)
Scabies (uncommon)
Pediculosis (uncommon)
Pin and thread worms (occasional)

Fungus Pruritus (Papulo macular moist dermatitis)

Trichophytosis

Intractable Pruritus (Lichenification of perianal skin)

Fermentation (common)
Putrefaction (common)
Post menopausal estrogenic deficiency (common)
Rectal constipation (common)
Pectenosis (common)
Allergy
Reflex from pelvic pathology (uncommon)
Chronic proctocolitis (uncommon)
Constitutional diseases diabetes malaria nephritis tuberculosis syphilis gallbladder disease and gout (uncommon)

Neurogenic Pruritus (localized patch of perianal dermatitis)

DISCHARGE

Common causes

Fistula (purulent)
Pruritus ani (serosanguineous)
Prolapsing piles (mucosanguineous)
Strangulated piles (bloody)
Carcinoma of the anorectum (mucosanguineous)
Fissure in ano (bloody)

Uncommon causes

Fecal impaction	Condyloma accuminata
Anal incontinence	Venereal ulcers
Procidentia recti	Stricture
Eczema	

PROLAPSE

Common causes

Internal hemorrhoids (bluish red swellings covered by mucous membrane and reducible)

Uncommon causes

Procidentia recti (prolapse of entire rectal wall)
Pedunculated polyp (reddish swelling reducible—on a pedicle)
Pedunculated papilla (grayish reducible swelling)

DIFFICULT BOWEL MOVEMENTS

Common causes

Rectal constipation (dyschezia)	Pregnancy
Pectenosis	Rectocele
Fissure in ano	Spastic or atonic colon

Uncommon causes

Stricture	Fecal impaction
Scirrhous carcinoma	Adhesions
Intussusception of the sigmoid	Angulations
Gynecological tumors	Redundancy of the sigmoid
Psychosis	Sacrococcygeal tumors

A Brief Picture of Common Anorectal Conditions

FISSURE IN ANO

This is one of the most common anal complaints causing anal pain or burning after b.m. which is long lasting, usually two to eight hours. There is usually bleeding of the toilet paper type. The fissure can be seen at the anal verge, most often posteriorly, and is frequently associated with a sentinel pile, tight anal opening, crypt, and papilla.

ANORECTAL FISTULA

An anorectal fistula is usually the end result of an anorectal abscess or cryptitis and produces momentary pain, anal burning, pruritus ani

and occasionally toilet paper type bleeding The external opening of the fistula is visible as a papule with a central opening while the internal opening is to be found as an indurated depression at the pectinate line

ANORECTAL ABSCESS

An anorectal abscess comes on suddenly as a perianal or intra anal swelling with constant throbbing pain One can usually see the reddened tender swelling or at least palpate it by bidigital examination It is also associated with an increase in temperature and leukocyte count

THROMBOTIC PILE

A thrombotic pile comes on suddenly as a firm, tender perianal swelling associated with constant pain Examination discloses a bluish tender swelling at the anal verge which may break open and exude dark blood or blood clots

INTERNAL HEMORRHOIDS

Internal hemorrhoids are situated above the pectinate line and give no symptoms other than bleeding or a feeling of fullness in the rectum The bleeding is seen in the toilet bowl If the hemorrhoids prolapse, there is constant pain until the prolapse is reduced

STRANGULATED HEMORRHOIDS

Strangulated hemorrhoids are the result of prolapsed irreducible internal hemorrhoids There is an edematous ring of perianal swelling intermingled with dark purplish protruding irreducible thrombotic hemorrhoids

PRURITUS ANI

Pruritus ani merely denotes an anal itch whose causes are many The perianal skin depending upon the etiology, may be just reddened and irritated it may be lichenified and gray, it may have many maculo papular eroded areas or it may be swollen and edematous

CRYPTITIS AND PAPILLITIS

Cryptitis and papillitis are small sinuses and papillae at the pectinate line causing anal pain with b m of short duration Proctoscopic ex amination will reveal the tender crypts and hypertrophied papillae

Chapter 4

PROCTOSCOPY AND SIGMOIDOSCOPY EXAMINATION AND INSTRUMENTATION

THE RECTOSIGMOID lends itself well to direct endoscopic visualization Today when the family doctor s office is often set up as a cancer detection center scientific medical practice can no longer neglect this simple easily available routine procedure It has been estimated that 75 to 80 per cent of all colonic cancers occur in that part of the bowel which can be reached by a 10 sigmoidoscope It has also been estimated in reliable clinics proctologists offices, and cancer detection centers that 7 to 10 per cent of all adult patients harbor polyps which are considered precancerous lesions

Early diagnosis is imperative in affections of the anorectum for many conditions at first simple and easily corrected with proper treatment soon become serious if neglected entailing prolonged disability and suffering Infections may become extensive invading deeper structures a fissure may go on to form an abscess and then a fistula, an adenoma (polyp) may undergo malignant degeneration and a neglected rectal carcinoma forms metatases becoming inoperable

It is important to establish a routine procedure when one attempts to interpret pathological changes in the anorectum The following procedures are advised and should be followed in every complete proctologic examination

1 History
2 General physical examinations
3 Inspection of perianal area
4 Digital examination of anus and rectum
5 Proctoscopic examination
6 Sigmoidoscopic examination
7 Laboratory examination
8 X ray examination

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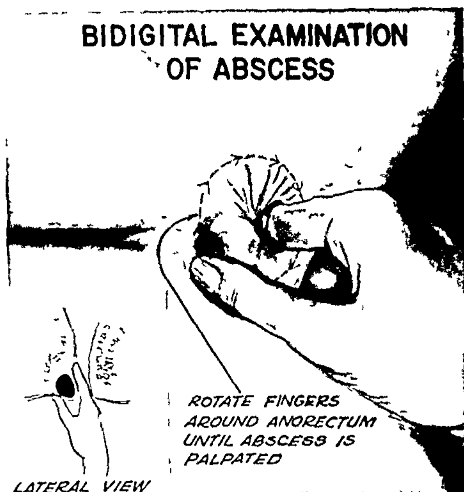


Fig 27 Bidigital Examination

For elusive nonvisible perianal abscess rotating both fingers clockwise will enable the examiner to locate an indurated area which is the abscess

pruritus ani swellings suggesting thrombotic pile skin tag condylomata an abscess a prolapsing hemorrhoid strangulated hemorrhoids and prolapsing pedunculated polyp fistulous openings a fissure with its sentinel pile or a pilonidal cyst or sinus These are the most common visible proctologic findings

Digital Examination

First a well lubricated index finger should be gently inserted into the anal canal increased anal tightness being noticed The finger (in the anal canal) should then be moved forward and backward while the

HISTORY

A brief proctologic history is essential and frequently diagnostic Questions relating to the following often give clues which help to establish a correct diagnosis Some of the important questions asked in our office pertain to blood in the stool anal or rectal pain burning during defecation, prolapse, external swellings itching discharge, and change in bowel habit

PHYSICAL EXAMINATION

Examination —Stressing cardiac lesion which may explain hemorrhoids and rectal bleeding enlargements of the liver particularly cirrhosis of the liver or hepatic engorgement associated with cardiac decompensation which may also explain anorectal bleeding abdominal examination for tenderness and rigidity rebound tenderness masses superficial veins fluid or inguinal adenopathy, and of which may indicate the presence of anal, rectal, or colon malignancy

INSPECTION OF PERIANAL AREA

The patient should be placed in the left Sims position with both knees drawn up towards the chin (fig 26) The patient aids in the examination by lifting the right buttock thereby bringing the anal opening into better view One looks for change in color and excoriations suggesting

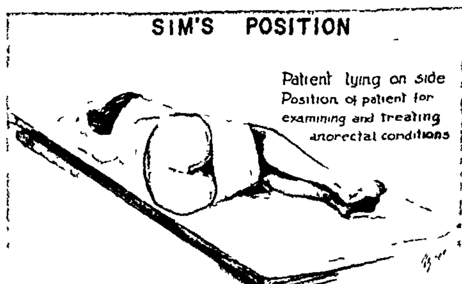


FIG 26 MODIFIED SIMS POSITION FOR ANOSCOPIC AND PROCTOSCOPIC EXAMINATION AND TREATMENT

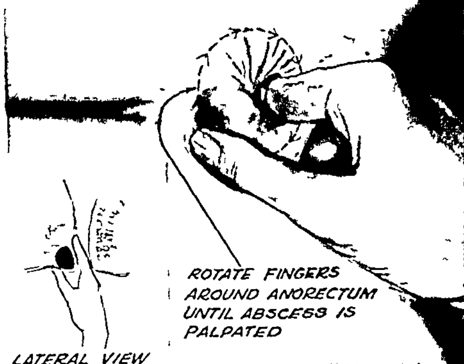


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DIGITAL EXAMINATION

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examiner notes indicated tender depressions at the pectinate line suggesting infected crypts or fistulous openings—palpable small projections which are hypertrophied papillae The finger then advances into the rectal ampulla, the examiner noting tenderness around the coccyx suggesting coccygodynia tenderness or enlargement of the prostate, possible tumors usually carcinoma or polyps, and, occasionally a stricture Digital examination, using the left finger with the patient in the right lateral Sims position will sometimes reveal rectosigmoidal tumors not otherwise palpable An irregular mass plus blood on the examining finger usually suggests a carcinoma For a suspected non visible anorectal abscess the bidigital examination is an excellent aid (see fig 27)

PROCTOSCOPIC EXAMINATION

Instruments—The type of instrument is important We prefer the Barr Shuford or Hinkle James and the Brinkerhoff speculi because they present for view only one side of the anorectum at a time This well lubricated instrument is passed gently through the anal canal, and the area is visualized by means of a strong spotlight Crypts and internal openings of fistulae can be detected by the use of the crypt hook Polyps papillae hemorrhoids, and other new growths can be visualized A fissure is best seen with the aid of the Brinkerhoff speculum (fig 34)

SIGMOIDOSCOPIC EXAMINATION

PREPARATION OF PATIENT FOR SIGMOIDOSCOPY

1 *Fleet's enema*—Taken 1 to 2 hours before examination is sufficient

Instruments (fig 28)

1 Any 10 sigmoidoscope with proximal light preferred
2 Air insufflator
3 Aspirator for removal of liquid stool gases and blood
4 Cotton tipped applicators 10 12 long
5 Biopsy punch 15 long
6 Slides for 'Pap stain or direct smear examinations for ameba

Position of the Patient

The knee shoulder position is preferable with the left shoulder maintained on a pillow and the face *turned to the right* Embarrassment of the patient is minimized by hand towel draping so that only the gluteal fold and the anal verge are exposed (fig 29)

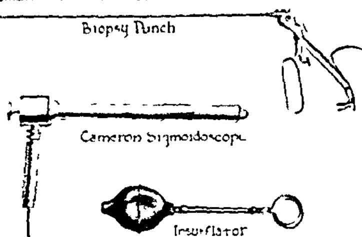


FIG 28 AUTHOR'S INSTRUMENTS FOR EXAMINATION AND TREATMENT OF RECTO-SIGMOIDOSCOPIC CONDITIONS, FOR BIOPSY OF TUMOR AND FOR "LAP" STAINS OF BLOODY MUCUS

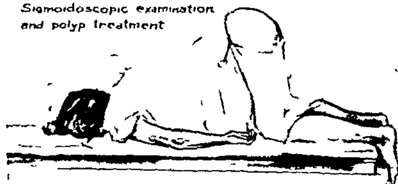


FIG 29 KNEE SHOULDER POSITION FOR SIGMOIDOSCOPIC EXAMINATION AND TREATMENT

Technic

The anal canal is lubricated with the finger before the sigmoidoscope is passed This allows for an easier and less painful passage of the instrument as well as *determination of the direction of the anal canal* The patient should be instructed to breathe normally with his mouth open, thus facilitating relaxation of the rectosigmoid

Step 1—Place the thumb firmly on the end of the obturator, thus preventing it from dislocating itself from the sigmoidoscope when insertion is made into the anal canal Use a steady pressure instructing the *patient to bear down at the same time This combination facilitates* an easier and more rapid passage through the anal canal (fig 30)

Step 2—Grasp the barrel of the scope in the left hand and remove the obturator with the right hand From this point on no further advance of the scope is made without complete visualization

Step 3—Air entering the ampulla after the obturator is removed balloons out the rectum, making it easier to visualize As one advances into the sigmoid the collapsed wall can be opened and made more easily accessible with the aid of a sponge dampened in warm water, or with the insufflation of air (fig 31)

Step 4—This step is the most difficult because one has to make the turn, usually to the right As he does this the examiner should inform the patient that pain in the bladder and abdominal area and a desire to defecate, will be experienced The patient is now advised to take short and rapid breaths This produces a negative pressure in the abdomen at each respiration which sucks air into the sigmoid lumen *ballooning* it out a little and at times actually sucking the scope into the bowel At 11 to 15 cm the process will be slow, and care should be taken to avoid perforating the sigmoid (fig 32)

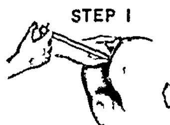
Step 5—From here on use the sponge moistened in warm water or gentle insufflation of air will complete the advance to 25 cm Upon withdrawal, a more careful survey of *the entire circumference* of the sigmoid and rectum should be accomplished This is performed by a rotary clockwise movement (fig 33) It is important to inspect behind *each rectal* valve which *may* harbor an important lesion A note should be made on the patient s record as to the exact location of any discovered lesion Of malignant growths 65 per cent occur in the rectal ampulla 15 per cent in the rectosigmoid, and 10 per cent in the sigmoid flexure

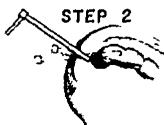
What to do and what not to do

1 Don't pass scope after obturator has been removed, without visualizing the lumen

2 Don't attempt to force scope all the way up to 10 inches unless passage is accessible without undue pressure Sigmoidoscopes cannot be passed to 10 inches (25 cm) in more than 75% of the cases because of short meso-colon, adhesions or severe spasm

3 If bloody mucus is noted at the highest reachable point a possible carcinoma is present higher up and the patient should have an improved x ray of the colon









Figs 30-33 The Four Steps in a Sigmoidoscopic Examination

Fig 30 step 1 The right hand grasps the scope the thumb pressing on the obturator while the left hand supports and controls the instrument The scope is gently inserted into the anal canal the long axis pointing to the umbilicus

Fig 31 step 2 The obturator is removed and the instrument advanced only under direct vision The proximal end being depressed the scope is advanced to positions 1 and 2 around the valves until the distal end lies beneath the sacral promontory

Fig 32 step 3 At this point the proximal end of the instrument is elevated and the distal end depressed and levered under direct vision to enter the rectosigmoid and sigmoid colon

Fig 33 step 4 The lumen of the sigmoid and rectum is carefully examined during withdrawal of the scope When examining the rectal ampulla the examiner must rotate the scope so as to encompass the entire circumference of the ampulla as shown above

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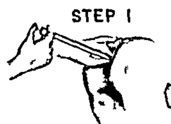
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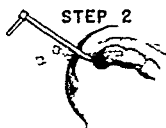
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4 If a perforation of the sigmoid occurs during sigmoidoscopy, leave the sigmoidoscope in place, tape it firmly to the buttocks, administer a combiotic and rush the patient to surgery for repair of perforation Otherwise, the rent is most difficult to locate

LABORATORY EXAMINATION

Stool —This should be done routinely to rule out bleeding higher up, and also to look for parasites, ova and cysts

Urine —This is especially interesting in cases of itching to rule ou diabetes

Biopsy —Tissue examination of all excised tissue, especially polyps granulomatous and papilliferous growths

Blood —Complete blood count Secondary anemia is usually found in chronic hemorrhoids Wassermann for anal chancre blood agglutination for the dysentery group

Bacteriologic and Cultural —Examine ulcer scrapings and stool for amebae and pathogenic enteric bacteria

Skin Test (Frei Antigen) —This is especially indicated in rectal stricture to rule out lymphopathia venereum

Papanicolaou Stain —Should be done on smears taken by cotton tipped applicators sponge biopsies or crapings of tumors bloody mucus ulcers or other suspicious areas A search should be made for malignant cells

X RAY OF COLON

The ordinary barium enema performed in the hospital or laboratory frequently overlooks important lesions of the rectosigmoid and colon. Unless the following instructions are given to the roentgenologist for the improved technic serious embarrassment may result to both the referring physician and the roentgenologist The orders for colon x ray should state that an air colon or contrast barium enema is to be done with lateral and oblique views of the rectosigmoid splenic and hepatic flexures The authors have seen many cases of carcinoma of the recto-sigmoid overlooked by the usual cursory x ray of the colon

For *complicated fistulae* lipiodol injection and stereoscopic x ray views are occasionally helpful

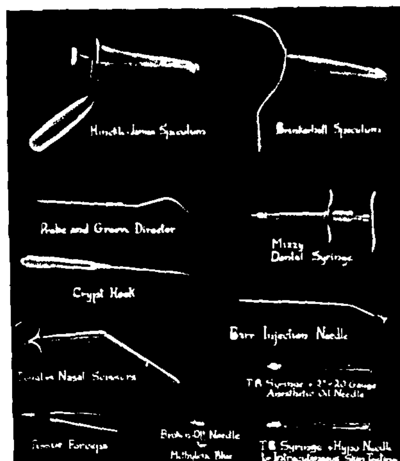


FIG 34 ANORECTAL OFFICE TREATMENT INSTRUMENTS

PROCTOLOGIC INSTRUMENTS

Examination and Treatment Instruments —Fig 34 shows the instruments used by the authors for the examination and treatment of anorectal conditions

Surgical Instruments —Those used by the authors for hemorrhoidectomy pectenotomy cryptectomy papillectomy fistula etc are illustrated in fig 35

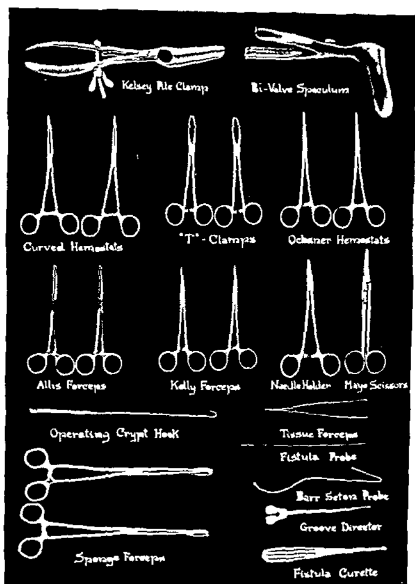


FIG 35 ANORECTAL OPERATING INSTRUMENTS

Chapter 5

ANESTHESIA FOR ANORECTAL OPERATIONS

For proctologic work general anesthesia and regional anesthesia (analgesia) are the two common methods employed Each operator becomes adapted to the method most suitable for his type of procedure and temperament The patient's temperament also has to be taken into consideration and deviation from a routine type of anesthetic is occasionally necessary For example local anesthesia (regional analgesia) as used by a great number of men for proctologic work is not satisfactory in a high-strung apprehensive individual In such a case general anesthesia is preferable although local is still used for regional analgesia

The position of the patient is also of prime importance If he is in lithotomy any type of anesthetic can be used while if he is in the prone jack knife a general anesthetic should not be used unless an endo-tracheal tube is in place This is essential so that if any respiratory obstruction takes place the anesthesiologist will have complete control

In geriatric patients premedication should be minimal no more that gr 1/8 morphine or 50 mg Demerol should be ordered Barbiturates should not exceed 3/4 to 1 gr and atropine gr 1/150 is the drug of choice rather than Scopolamine which often has an adverse psychic effect on elderly people

Older age group patients are dramatically intolerant to hypoxia Also if hypertension is noted immediate corrective measures must be instituted

With inhalation anesthetics the surgeon must be aware of the explosiveness of the ane thetic in case he is using any electrical apparatus such as an electro coagulating diathermy machine

The writer's favorite combination in anorectal surgery is pentothal sodium for general anesthesia plus novocain for local with the patient in the lithotomy position Local analgesia is used in conjunction with general for the following reasons 1 The adrenalin added to the novocain cuts down the general operative bleeding by its vasoconstrictive action making the field less bloody 2 It relaxes the sphincter 3 It

centage of successes is obtained in this manner However, this method is also time consuming and not always successful

OIL ANESTHESIA TECHNIC

(*For Fissure in Ano Anal Tightness and Intractable Anal Pain*)

For the palliative relief of fissure in ano anal tightness, and intractable anal pain (unexplainable), anesthetic oil is used instead of aqueous local analgesics

Solution —One cc Nupercainal (Ciba) is used for the posterior injection and 1 cc is used for the anterior injection

Needles —Twenty gage, 2 inches long

Syringe —One cc tuberculin syringe

Fissure in Ano Technic

Pierce the skin halfway between the coccyx and the anal verge Inject subcutaneously toward the coccyx and to the right and the left of the coccyx (1 2 fig 36) Now reverse the needle and inject toward the fissure subcutaneously (4), then *deep into the external sphincter* to the left and right of the fissure (5 and 6) and the balance of the 1 cc under the fissure This last one third of the cc lays down a nice bed of anesthetic oil under the fissure This is all the anesthetic that is used the first visit At the next visit, two to seven days later, the following technic is used With 1 cc of Nupercainal, pierce the skin in the anterior quadrant just above the anal verge and inject toward the perineal body parallel to the anus but only for a distance of about ¾ inch Use the finger in the anus as a guide, and inject parallel to the anus, then into the sphincter to the left and right from the same point The fissure should be touched up with silver nitrate 25 per cent 50 per cent phenol or pure ichthyol after each injection

Anal Tightness

The same technic is used for anal tightness as is used for fissure except that the last injection under the fissure is omitted

Intractable Anal Pain

Inject under the area of pain and then into the sphincter muscle to the left and to the right of the area of pain using a total of 1 cc for the entire procedure

Don'ts for the Injection of Anesthetic Oil

Don't inject anesthetic oil intradermally Don't inject oil under pressure or if resistance is encountered Don't inject oil in the presence of infection Don't put too much oil in any one place Small amounts are all that is necessary and are much safer If these rules are respected rapid and prolonged anesthesia is obtained in the majority of cases

GENERAL ANESTHETICS

NITROUS OXIDE AND OXYGEN

Nitrous oxide and oxygen plus premedication of atropine sulfate gr 1/150 and morphine sulfate gr 1/6 given one hour before surgery is a good general anesthetic for proctologic work

CYCLOPROPANE AND ETHYLENE

These are also valuable gas anesthetics favored by many and preferred by some and are satisfactorily used for proctologic work

FOR COLON SURGERY

For colon resections and abdominal perineal resections we prefer spinal anesthetics the type and amount dependent upon the expected length of the surgery This is supplemented by sodium pentothal or inhalation anesthesia if necessary If there is a contraindication to spinal—hypotension severe arthritis etc —general anesthesia such as ether with intratracheal intubation is used

Chapter 6

PREOPERATIVE AND POSTOPERATIVE CARE IN ANORECTAL SURGERY

Making Anorectal Operations Less Painful

HAVING HAD an anorectal operation early in my proctological career I have always understood and appreciated the discomforts and apprehension of patients and have endeavored to save them any unnecessary mental and physical pain The following remarks and suggestions may help the reader save his patients unnecessary discomfort

The enema the night before the operation, the 3 grains of barbiturate on retiring to assure a restful night before surgery, the morphine and atropine one half hour before surgery, the easily administered and pleasant pentothal anesthesia, all help to start patients off on their proctologic journey in a happy, confident state of mind

To minimize postoperative pain, one of the first things to keep in mind is no suturing or cauterization of the skin When removing skin tags, sentinel piles subcutaneous fistulous tracts, etc remove sufficient skin and do not suture, leaving the excised skin edges open prevents sealing in infection prevents postoperative infectious swelling prevent pulling on the sutures of the swollen parts and thereby prevents unnecessary pain Infected sutures frequently slough out leaving ragged unsightly tags This is all avoided by the open no skin suture method Bleeding vessels of course should be ligated or coagulated

When the operation has been completed do not insert one of the old fashioned rubber tubing and gauze whistles' which are antiquated and cause excruciating postoperative pain, not to mention the agony of the patient when the whistle is removed Instead an opium and belladonna suppository should be inserted followed by the insertion of a cigaret drain from which the gauze filler has been removed This causes no discomfort while inserted and more important does not hurt the patient when it is removed the following morning

Lubrication of the colon with mineral oil taken orally followed by

a mineral oil retention enema on the second morning after the operation prevents the dehydrated fecal impactions which occurred with the old method of opium by mouth for a number of days The patient should be encouraged to urinate or be catheterized within 8 to 10 hours following the operation to prevent an uncomfortable first night and future genito urinary complications Phenaphen and codeine before bowel movements followed by a sitz bath aspirin compound tablets after meals sedatives and analgesics at bedtime or whenever else indicated all help to keep the patient comfortable The following outlines are duplicates of preoperative and postoperative routine orders left on every hospital floor visited by us and contain in detail everything the authors have found helpful in saving patients pain

Preoperative Preparation

THE NIGHT BEFORE SURGERY

1 An enema of plain tap water Occasionally patients have severe pain and cannot tolerate an enema In such cases the enema is omitted

2 Sod amytal gr 3 with a glass of warm milk upon retiring

THE MORNING OF SURGERY

1 Have the patient void before going to surgery

2 One hour before surgery give hypodermically 100 mg Demerol and gr 1 150 of atropine depending upon the size of the patient

Postoperative Preparation

FIRST DAY

1 Fluids as tolerated such as water hot tea and coffee A general diet to include everything raw vegetables and raw fruits may be started the same evening or as soon thereafter as is desired by the patient

2 A hot water bottle to the perineum on return from surgery well covered with towel material to avoid burns

3 Demerol 100 mg by hypodermic on awakening and as necessary during the day

4 Encourage the patient to void the evening following surgery The patient may stand alongside the bed if necessary If he is unable to void catheterize before retiring

5 One amytal compound capsule with a glass of warm milk before retiring, for the first few nights This may be repeated during the night if necessary Demerol may be given hypodermically, if necessary

THE MORNING AFTER SURGERY

1 The intern or nurse removes the pack unless otherwise ordered

2 Have the following articles on a tray for the removal of the pack and for postoperative treatments dry dressings abdominal pad jar of petrolatum jelly, and a tube of Surfacaine anesthetic ointment with pile pipe The Surfacaine ointment is inserted each morning by the physician moving the pile pipe from side to side This breaks up granulations which tend to adhere to each other, and does away with need for finger dilatation

3 One aspirin compound tablet after each meal following removal of the pack and continued until patient leaves hospital, in order to keep pain down to a minimum

4 One half ounce of mineral oil twice a day If patient has more than one bowel movement per day discontinue mineral oil until frequency has subsided

5 Continue general diet until patient leaves the hospital and thereafter

THIRTY SIX HOURS AFTER OPERATION

(EVENING AFTER REMOVAL OF PACK)

1 Start a ten minute tolerably hot sitz bath the evening following the removal of the pack and continue morning and evening until patient goes home

2 Four milligrams of vitamin K twice a day to build up prothrombin and avoid unnecessary postoperative bleeding

3 Administer 1 amytal compound capsule on retiring Repeat during the night if necessary

SECOND MORNING AFTER OPERATION (ENEMA PROCEDURE)

1 Surfacaine anesthetic ointment is inserted into rectum 10 minutes before enema is given

2 Six ounces of warm mineral oil is injected into the rectum with a catheter and retained for one hour

3 Phenaphen and codeine gr ½ (caps 2) one half hour later

4 One hour after the oil retention enema give a sodium bicarbonate enema

5 Apply a hot water bottle after the second enema

Patients are usually permitted to go home at the end of five days unless their condition or circumstances warrant a longer stay A copy of the following instructions or home treatment is to be given to the patient upon dismissal with a week s supply of all medications properly labeled

HOME INSTRUCTIONS FOR POSTOPERATIVE PATIENTS

See that all of your medicine are given to you to take home with written instructions on each bottle and box

1 Take 1 or 2 phenaphen capsules ½ hour before b m 's to mini mize pain Take more after b m s if necessary to relieve anorectal discomfort

2 Take a sitz bath each morning and night Try to take the morn ing sitz bath immediately after the bowel movement Sitz baths can be repeated after all bowel movements

3 Insert Surfacaine anesthetic rectal ointment five minutes before bowel movements and immediately after Ointment can be repeated at any time for pain To promote more rapid healing Desitin rectal ointment is inserted twice daily

4 A hot water bottle an infra red heater or hot boric acid com presses can be used at any time for added comfort

5 No specific diet is necessary unless ordered

6 Take ½ ounce of mineral oil on retiring each night If more than one bowel movement a day occurs stop mineral oil for 24 hours or adjust the dosage If no bowel movement occurs in 24 hours increase the mineral oil and take a plain water enema

7 Any indicated tonic is helpful during convalescence (Consult your family doctor)

FURTHER OFFICE POSTOPERATIVE CARE

1 Desitin rectal ointment with pile pipe should be moved laterally from the posterior raphe to the anterior raphe every other day by the physician Numerous clinicians including ourselves and research men have found that cod liver oil is a factor in promoting tissue repair with a resulting more rapid healing Desitin ointment is also recom mended for an extra month after healing is visibly completed Desitin ointment also anoints and lubricates the anorectum making trauma with bowel movements less likely

2 5% silver nitrate and scarlet red ointment 5% are helpful in postoperative treatment

3 Patients should be watched until completely healed

tically all of them If catheterization has been performed, 2 Gantrisin *tablets 3 times daily will* prevent a cystitis If difficulty in starting urination still persists, insert an indwelling catheter and give *urecholine* 15 mg three times daily until voiding is *normal Catheters can be removed* in two or three days

DIARRHEA

For no apparent reason a patient occasionally develops diarrhea during the first postoperative week Frequent stools cause tenesmus *and added discomfort* Whenever this occurs, our treatment *consists of* a potassium permanganate enema and paregoric drams 1 every half hour for 3 doses The potassium permanganate enema is prepared by dissolving a 1 grain tablet in a glass of warm water Then one half of this concentrated solution is poured into an enema bag or can of warm *water and diluted to 1000 cc The patient is placed on his right side and* the solution is permitted to enter the recto colon slowly This can be repeated twice a day but is seldom necessary The results are most satisfactory

FECAL IMPACTION

Because of a subconscious fear of bowel movements following proctologic surgery, some patients accumulate enough stool in the rectum *after a number* of days to develop a fecal impaction These patients come in complaining of a constant rectal discomfort and leakage of liquid stool On questioning and examination one finds that all they have been passing is a small amount of liquid stool The insertion of a gloved finger will provide the diagnosis

Treatment —An oil retention enema (90 cc) of mineral oil or cotton seed oil is administered to soften up the fecal impaction After an hour, *the fecal mass is broken up into smaller masses* with the examining finger This is followed by another enema consisting of 2/3 tap water and 1/3 hydrogen peroxide Recently, we have been having good results with the Fleet phospho soda enema as a substitute for the peroxide and water enema The above procedure may have to be repeated if the finger locates more fecal masses After the evacuation of the enema a Desitin suppository should be inserted twice daily for several days to relieve the *irritation and inflammation* caused by the impaction

BLEEDING

Most patients have a natural immunity to the bacterial flora found in their recta just as most human beings possess immunity to the bacteria found in their throats However, lowered resistance which is not easily detected preoperatively, can be responsible for secondary infection at the site of operation, resulting in necrosis erosion of a vessel, and bleeding, or a highly virulent type of intestinal bacteria may cause local infection and necrosis A low prothrombin content may be responsible for delayed thrombosis of ligated vessels and result in postoperative bleeding In spite of all the precautions one may take, occasionally somebody will call during the night and state that a patient is bleeding The first question the writer usually asks is, Did the patient pass many clots or did he notice a pool of blood in the bed? This question is very important because internal bleeding occurring at the site of the removed internal hemorrhoids will accumulate in the rectum and sigmoid form clots and produce a desire to have a stool The patient thinking he has to have a bowel movement, will instead pass an abundance of blood clots and liquid blood This type of bleeding calls for hospitalization whereupon an anesthetic is administered and the bleeding point is located and ligated or coagulated

On the other hand if the patient s family calls and reports finding a pool of blood in the bed it usually indicates a bleeding point at the entrance to the anal canal which can be visualized and ligated at the bedside or packed with Gelfoam This should be followed by a ball type of packing and a tight binder

If bleeding is not excessive an Alum enema is tried Alum enema consists of 2 drams of alum powder to a pint of luke warm water The solution is placed in an enema bag a soft urinary catheter is attached to the hard rubber enema tip, and the catheter is inserted into the rectum The enema is given with the patient in the *sitting position* and the alum solution running in and out This enema can be repeated as often as necessary In addition, Koagamin (1 or 2 cc) is injected subcutaneously twice daily until the bleeding has been controlled

Another helpful remedy for postoperative bleeding is a Gelfoam & milk enema The technic is as follows

1 A water or saline enema is given to clean bowel of clots and fecal matter

2 30 cc dry Gelfoam sterile powder is added to warmed and fresh pasteurized milk to make a total volume of 100 cc

3 500 units of thrombin is dissolved in 30 cc of warmed sterile water

A sterile lubricated small rectal tube is inserted into the lower rectum The milk Gelfoam suspension is poured into a funnel (which is attached to rectal tube) into the upper rectum Immediately follow with the thrombin solution Have patient retain solution for 10 minutes before expelling it One enema should usually stop bleeding but repeat if necessary twice daily until the condition is controlled

If postoperative bleeding occurs two tablets of Sulfasuxidine four times daily are administered to help the patient combat the effects of his lowered resistance and infection If much blood has been lost, intra venous saline and glucose solutions as well as blood and plasma may have to be administered

Where cirrhosis and arteriosclerosis exist every preoperative oper ative and postoperative precaution should be taken, as bleeding in these cases can become almost impossible to control because of the extensive passive congestion in the rectum and the inability of the sclerotic vessels to thrombose

ITCHING

About one to two weeks postoperatively most patients will complain of anal itching This can be controlled by painting the area with a solution of 10 per cent silver nitrate followed by painting with a second solution of 5 per cent tannic acid in 90 per cent alcohol every other day For home treatment the patient is advised to use mentholated vaseline whenever itching occurs or Panthoderm cream twice daily

POSTOPERATIVE SOILING

We have found that occasionally patients will return about two months following surgery to complain of perianal soiling We believe that the following are the possible causes for this complaint

1 Fear of discomfort to pucker the anal sphincters Instead only the accessory muscles such as the glutei are used to clo e the anus These muscles however are not capable of producing an adequate closure

2 It is possible that the replacement fibrous connective tissue in the several excised anorectal areas interfere with normal contraction of the anal sphincters

3 Possible chronic amebiasis with resulting liquid stool retention in the rectum following passage of a formed or partially formed stool This, plus the inadequate anal contraction, causes leakage and soiling of undergarments

4 The continuous use of mineral oil with its residual liquid stool in the rectum following b m 's plus the above inadequate anal contraction

5 The prolonged anesthesia of the anorectum following routine operative use of oil anesthetics as used by some proctologists

6 Incision of portions of the anal sphincter muscles in fistula operations

Treatment —Because any of the above causes may be present all should be investigated and alleviated The stool should be checked for chronic amebiasis If it is positive two courses each of Diodoquin and Carbarsone should be prescribed If it is negative and mineral oil has been used this should be eliminated and a smooth bulk laxative should be prescribed in its place

Upon examining these patients who complain of soiling we have found that when they are ordered to close the anus the anal sphincters are not utilized, instead, the glutei are pulled together from side to side which does not pucker the anal opening and does not produce complete continence If you will request your next patient complaining of soiling to contract his sphincters under your visual observation you will more readily understand this previous explanation

The fear of complete anal contraction, plus the scar tissue interference with normal contraction plus an incised portion of the anal sphincter causing soiling can be alleviated by certain anorectal exercises which in recent months we have been instructing all our post operative cases to perform Since doing so we have not had any soiling complaints

The anal exercises consist of contracting and relaxing the sphincter ani muscles several times in succession and at least 50 times daily These exercises performed regularly over a period of weeks control perianal soiling caused by any of the above factors The patient should be watched for a few minutes when anal exercises are prescribed to make

2. 30 cc. dry Gelfoam sterile powder is added to warmed and fresh pasteurized milk to make a total volume of 100 cc.

3. 500 units of thrombin is dissolved in 30 cc. of warmed sterile water.

A sterile lubricated small rectal tube is inserted into the lower rectum. The milk Gelfoam suspension is poured into a funnel (which is attached to rectal tube) into the upper rectum. Immediately follow with the thrombin solution. Have patient retain solution for 10 minutes before expelling it. One enema should usually stop bleeding, but repeat if necessary twice daily until the condition is controlled.

If postoperative bleeding occurs, two tablets of Sulfasuxidine four times daily are administered to help the patient combat the effects of his lowered resistance and infection. If much blood has been lost, intravenous saline and glucose solutions, as well as blood and plasma, may have to be administered.

Where cirrhosis and arteriosclerosis exist, every preoperative, operative, and postoperative precaution should be taken, as bleeding in these cases can become almost impossible to control because of the extensive passive congestion in the rectum and the inability of the sclerotic vessels to thrombose.

ITCHING

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POSTOPERATIVE SOILING

We have found that occasionally patients will return about two months following surgery to complain of perianal soiling. We believe that the following are the possible causes for this complaint:

1. Fear of discomfort to pucker the anal sphincters. Instead, only the accessory muscles such as the glutei are used to close the anus. These muscles, however, are not capable of producing an adequate closure.

2 It is possible that the replacement fibrous connective tissue in the several excised anorectal areas interfere with normal contraction of the anal sphincters

3 Possible chronic amebiasis with resulting liquid stool retention in the rectum, following passage of a formed or partially formed stool This plus the inadequate anal contraction, causes leakage and soiling of undergarments

4 The continuous use of mineral oil with its residual liquid stool in the rectum following b m s, plus the above inadequate anal contraction

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The anal exercises consist of contracting and relaxing the sphincter and muscles several times in succession and at least 50 times daily These exercises performed regularly over a period of weeks control perianal soiling caused by any of the above factors The patient should be watched for a few minutes when anal exercises are prescribed to make

certain that he knows the difference between pulling in and puckering the sphincters (which is correct), and pressing the glutei together (which is incorrect) These few minutes spent on instructing the patient will make all the difference in producing good results

ANAL STENOSIS

Postoperative anal stenosis is most commonly caused by an over zealous removal of anal and perianal epitheleum during surgery Occasionally, it is caused by the development of excess fibrous connective tissue in patients having fibroplastic diatheses We have made it a habit to leave a bridge of skin and anal epitheleum between each hemorrhoid or crypt removed In this way, epithelialization covers the denuded area and prevents stenosis

Another procedure used by us to prevent postoperative anal narrowing is the insertion of a pile pipe into the anal canal daily for the first week following surgery and then thrice weekly The pile pipe is moved slowly but firmly from the anterior to the posterior anal canal breaking up any adhesions which may form By using the pile pipe, we have found it only rarely necessary to do painful finger dilatation Patients have heard of finger dilatation from others who have had anorectal surgery and fear it greatly Patients are very grateful when they learn it is not necessary

If patients develop anal stenosis or are seen with a postoperative anal constricture early finger dilation 3 times weekly by the physician and daily by the patient usually corrects the condition The best finger lubricant to aid in stretching and softening the scar tissue is castor oil Long standing cases of anal stenosis require an anotomy followed by the above castor oil lubrication dilatation technique

DELAYED WOUND HEALING

Delayed wound healing is usually caused by chronic amebiasis ulcerative colitis enteritis malnutrition or avitaminosis Cases of delayed healing are not common, but we do see them occasionally We feel that such cases are most often pending or low grade ulcerative colitis or ileitis cases with no visible ulcers in the recto sigmoid but with some low grade infectious process possibly higher in the colon or small intestine

Here I wish to emphasize the necessity of performing a routine sigmoidoscopic examination before surgery. This is important not only to rule out the possible presence of a polyp or a carcinoma higher up but to determine the presence of an ulcerative procto-colitis. If an ulcerative condition exists, surgery is contraindicated except in emergency surgery such as an abscess or a complicating fistula. If hemorrhoids, *fissures, crypts and the like are operated upon in the presence of an* ulcerative procto-colitis the wound may never heal without a colostomy.

After two weeks following anorectal surgery, if a wound appears indolent and behind schedule in its healing progress our treatment in such cases is to place the patient on a combination of empirical treatment, such as Diodoquin gr. X 3 times daily and sulfathaladine 5 tablets 3 times daily plus a highly nourishing bland diet and a concentrated vitamin capsule. In addition Desitin cod liver oil rectal ointment or 5% scarlet red ointment inserted into the anorectum with a pile pipe twice daily is advised. This added oral and anorectal treatment is continued until a complete healing is accomplished. Cod liver oil ointment has been found to promote more rapid healing.

Conclusion

It may seem from all of the complications I have discussed that our patients have nothing but complications. This, of course, is far from the truth. The complications previously enumerated occur only occasionally but it is most important to recognize them early and to know what treatment to institute. The treatment given above is that which we have found successful in an extensive proctologic practice of over thirty years duration.

Chapter 8 CRYPTITIS AND PAPILLITIS

CRYPTITIS is an inflammation and hypertrophy of the semi lunar anal valve and the minute crypt which it outwardly bound Papillitis is an inflammatory hypertrophy of the anal valves or pre existing papillae located at the base of the column of Morgagni, re sulting in pointed toothlike growths Occasionally these growths are seen as knoblike tips at the end of a short stem (fig 38)

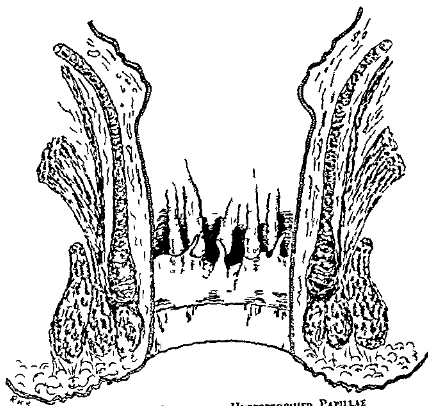


FIG 38 ANAL CRYPTS AND HYPERTROPHIED PAPILLAE

ETIOLOGY

Predisposing factors are as follows The crypt lumena and con e quently the valve leaflets are pointed upward and are subject to trauma from stools Constipation with its resulting trauma is another predis posing factor

The *direct cause* is trauma Because of the anatomical position of these crypts, they are vulnerable The passage of a hard stool or other foreign bodies such as seeds, bones etc bruise the leaflets This

trauma results in an inflammatory reaction in which bacteria take part Minute particles of fecal material are forced into the lumen of the crypt and are retained, with the aggravation of an already existing inflammatory reaction

Anorectal glands independent structures, preformed not due to an inflammatory process, tubular in shape simple or complex and several in number are present, and usually communicate with the distal ends of crypts It is believed that stool retained in crypts liquifies and drains into these tubular glands giving rise to cryptitis and, at times to abscess and fistula

PATHOGENESIS

The decomposition of the retained fecal material, together with the inflammatory changes from bacterial activity on the denuded surfaces of the crypt valve and anal gland results in a cryptitis This produces a slight discharge which by chronic irritation to the semilunar valves results in hypertrophy of the valves with resulting hypertrophied papillae The overlying hypertrophic papillae then aid in preventing the escape of constantly clogging fecal material This tends to intensify the condition Chronic inflammation in this area results in pectenosis (fibrous narrowing of the anal canal) Tightening of the anal canal by pectenosis or trauma or clogging of the mouth of the crypt with food particles may in time close the openings of the crypts and result in an abscess and fistula Today it is generally believed that the great majority of fistulae start in just this way Cryptitis is also believed to be an important focal point of infection The discharge emanating from an infected crypt in conjunction with the pectenosis is also believed to be an important etiologic factor in the causation of the intractable type of pruritus ani An infected crypt at the posterior midline may give rise to a fissure in ano

SYMPTOMS

The patient usually states that there is pain which comes on during a bowel movement this is due to the fact that fecal material has passed over and into an infected tender crypt This pain usually persists for a short while afterward, generally for about one to five minutes This may however, vary from a momentary burning sensation to soreness and severe pain depending upon the sensitivity of the patient Sudden and periodic lancinating pains within the anal canal may occur at any time and are in no way related to bowel movements The pain of cryptitis may be referred to the buttocks sacrum thighs legs bladder or uterus

Tightening of the anal canal (pectenosis) which is frequently referred

to as hypertrophy of the sphincters usually results in and is accompanied by constipation Because of the inflammatory process, papillae undergo hypertrophy and may attain unusual size Under these circumstances the individual may complain of a crawling sensation in the anus simulating worms The papillae may prolapse from the anus during defecation and give rise to the illusion of an unsatisfactory bowel movement

DIAGNOSIS

The diagnosis is based upon a history of anal pain or anal burning which comes on with bowel movements and lasts for only a short period of time, also sharp lancinating pains that may occur at any time

Digital examination over the pectinate line reveals tender indurated small depressions Adjoining the small, tender depressions papillae may be felt as small, firm, movable bodies attached to the pectinate line Proctoscopic examination reveals the valve leaflets of infected crypts as being inflamed, edematous, and enlarged A crypt hook can be inserted into the infected crypt with the production of exquisite pain This is differentiated from a normal crypt, which does not receive an examining hook The papillae are usually seen as small grayish white tooth like bodies with a wide base and pointed tip If inflamed, however, the base will appear much wider, the papillae longer, and the color will vary from pink to red depending on the extent of the inflammatory process

DIFFERENTIAL DIAGNOSIS

The pain of cryptitis and papillitis which is short in duration, differs from that of fissure in ano which is very prolonged in duration A papilla is differentiated from a rectal polyp by the location a papilla is always found at the pectinate line, while a polyp is found above the pectinate line (fig 39) Also papillae are usually sensitive to manipulation whereas polyps are not

TREATMENT

If no systemic infection exists that may have been caused by the infected crypts then palliative treatment may be tried for two weeks

Palliative Office Treatment—In the office the crypt area is swabbed with an applicator of 5 per cent phenol in olive oil Then a crypt hook is immersed in 50 per cent phenol in olive oil and inserted into the crypt Desitin cod liver oil ointment is then applied with a pile pipe

Home Treatment—At home the patient is instructed to take mineral oil one half ounce or more at bedtime The diet should be bland Hot sitz

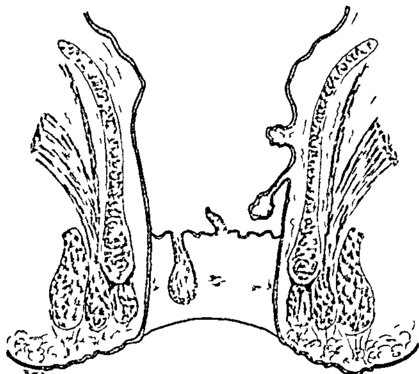


FIG. 39. PAPILLAE AND POLYPS

Papillae are found at the pectinate line, contain sensory nerves, and are covered with squamous epithelium. Polyps are found above the pectinate line, contain no sensory nerves, and are covered by columnar epithelium. Papillae seldom become malignant, while polyps degenerate in about 50 per cent of the cases.

baths twice daily are beneficial. Desitin cod liver oil suppositories are inserted into the rectum after b.m.s. The Desitin cod liver oil suppositories have a soothing and healing effect on the inflamed crypts and papillae. They also lubricate the anorectum, resulting in diminished trauma during bowel movements.

Surgical Treatment.—Local and pentothal anesthesia is used (see chap. 5). A crypt hook is inserted into the crypt and the crypt is raised from its attachment while a scissors snips it off from its base below the hook. A hemostat is applied to the papilla at its base and the papilla is crushed. The hemostat is then removed and the papilla is excised in the crushed area. Bleeding can be controlled by applying the active ball point of a diathermy unit. The skin or skin tag at the distal portion of the crypt is excised for proper drainage and healing. If pectenosis exists, a pectenotomy is done in the area of one of the excised crypts, preferably to the left or the right of the posterior midline. A belladonna and opium suppository is inserted, followed by the usual cigaret drain, gauze and ball pack. For further postoperative treatment see chapter 6.

Chapter 9

PECTEN BAND, PECTENOSIS, AND PECTENOTOMY

ALMOST thirty years have elapsed since W E Miles of London described a pathologic anal tightness which he called "pectenosis" His associate A Lawrence Abel, elaborated on the above condition in 1932 in a splendid paper entitled 'The Pecten, The Pecten Band, Pectenosis and Pectenotomy," but this common pathologic condition of the anus remains a disputed proctologic entity to this very day

Applied Anatomy of the Anorectum

In order to more clearly understand "pectenosis," a brief review of the applied anatomy of the anorectum is helpful During fetal life the *proctodeum pushes up and the hind gut pushes down* (figs 1-4) Where the two meet, a membrane known as the anal membrane is formed About the third month of intra uterine life this membrane ruptures and forms a communication between the bowel and the exterior Should this membrane not rupture, one of the types of imperforate anus results

Where the anal membrane ruptures an irregular line remains which is known as the pectinate line (after the Latin word *pecten* meaning comb) *This line is also called the dentate line because it resembles* the edges of a row of teeth Arising from this line are the anal papillae and, above this line, the columns of Morgagni The bases of the anal papillae are connected by a number of irregular semilunar folds which are known as the anal valves These form a number of small pockets or sinuses, the Crypts of Morgagni

In 1863 Hilton described a white line which he believed to correspond to the lineal interval between the external and internal sphincter muscles Between Hilton s line and the pectenate line is the area described by Stroud in 1896 as the "pecten' Its color is intermediate between that of the skin and the mucous membrane of the rectum presenting in a normal individual a glistening smooth appearance It is lined by modified skin but is devoid of sweat glands, sebaceous glands and hair follicles (fig 10) The pecten is a most important landmark as it is the dividing area between the vascular system, the nervous system the

lymphatic system, the skin (ectoderm), and the mucous membrane (entoderm)

ETIOLOGY OF PECTENOSIS

Chronic passive congestion from either internal or external hemorrhoids may lead to passive congestion in the pecten area because of the tributaries from the superior and the inferior hemorrhoidal veins

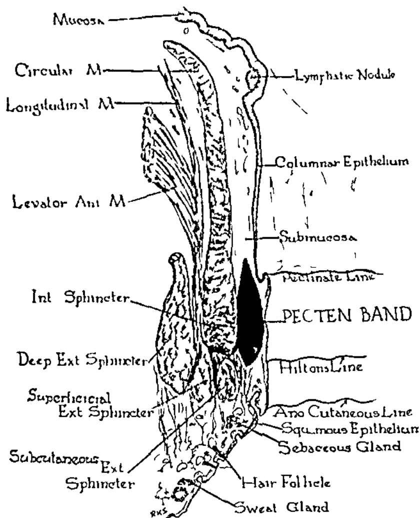


FIG 10 PECTEN BAND

Schematic longitudinal section through an anorectum showing the normal anatomy in relation to a pathologic pecten band Note that the pecten band (solid black oval) lies between the anal epithelium and the muscularis and reaches from just above the pectinate line to Hilton's line below It is covered by modified squamous epithelium below the pectinate line and by columnar epithelium above the pectinate line

arising from a minute capillary plexus in the submucosa of the pecten Hypertonicity or spasm due to chronic cryptitis or inflammation also may produce a local passive congestion Constipation straining at stools, lacerations resulting from the passage of hard stools and irritating liquid stools, may also cause a passive congestion in the anal canal Passive congestion in this area from any cause is followed by round cell infiltration and a circular deposit of fibrous connective tissue in the subpecten area Such a deposit in the area of the pecten produces the condition described by Miles and Abel as "pectenosis" Abel likens this fibrous tissue deposit to the indurated zone around a varicose ulcer of the leg, to the fibrous change in the wall of the esophagus opposite the whole length of the cardiac sphincter in cardiospasm, or to the dense fibrous tissue in the gastric wall opposite an ulcer, forming the hour glass stomach

The longer chronic congestion exists, the more fibrous connective tissue is deposited and the denser becomes the pecten band The denser the band, the more difficult it becomes for the sphincter muscles to relax The lining becomes avascular, it loses its elasticity, and the anal canal becomes rigid and narrower When one examines this area digitally, the finger feels tightly squeezed by the contracted lumen The size and caliber of the feces become diminished and the patient complains of difficulty in obtaining complete emptying of the rectum The more difficult it is to defecate the more the patient strains and the more aggravated becomes any existing hemorrhoidal condition A vicious circle is established because with more pectenosis there is increased straining which in turn results in increasing passive congestion and a more dense pecten band

This condition must be differentiated from postoperative anal stenosis after recent surgery In this condition it is almost impossible to insert the examining finger One should also exclude anorectal stricture caused by lymphogranuloma venereum a specific infection associated with an active bloody purulent discharge and a fibrosis which frequently does not admit the examining finger The Frei test in these cases is usually positive

SEQUELAE OF PECTENOSIS

Owing to fibrous tissue deposit in the submucosa of the pecten band the mucous membrane instead of being freely movable over the adjacent

tissue becomes anchored to it the consequent poor blood nourishment renders it more easily vulnerable to trauma Normal crypts of Morgagni may then become traumatized by seeds skins and fibers in the stool with resulting infection and inflammation of the anal glands producing the condition known as cryptitis Infected inflamed crypts and anal glands become a definite focus of infection and irritation Chronic discharge from an infected crypt causes inflammation of the semilunar valves with resulting hypertrophy of the papillae terminating as papillitis A constipated hard stool may crack open a crypt or any portion of the poorly nourished tightly adherent anal canal with a resulting fissure in ano We agree with Abel when he states that it is uncommon to find an anal fissure without a pecten band

If owing to increased tonicity fibrous change or occlusion of the opening of the crypt or gland by particles in the stool pyogenic substances are imprisoned an abscess develops which is usually followed by a fistula Abel believes that because of the mucous membrane of the rectum becoming avascular and abnormal in patients with long standing pectenosis secretion of normal mucus is apt to become excessive bathing the skin with an irritating liquid and the patient suffers from pruritus ani Abel further asserts that when no other pathologic condition exists in this region pruritus ani may be cured by pectenotomy He speculates that sometimes the pecten band may be responsible for the development of carcinoma in the altered mucous membrane of the anorectum

Personal Clinical and Histopathological Observations

Miles and Abel s interesting data on pectenosis came to our attention in 1932 thereafter we undertook a more careful search of the anal canal in all patients presenting proctologic complaints At first it was *difficult to change our conception of increased anal tightness* since we believed it to be caused by anal spasm or hypertrophy of the external anal sphincter But after eight years of obtaining satisfactory clinical results with pectenotomy a co worker Otto Weiss and I decided to investigate the normal histology and pathology of the area involved in pectenosis with the aim of establishing microscopically that the Miles Abel pectenosis theory concerns a definite pathologic entity For purposes of study we utilized 14 adult anorecta 5 newborn recta 2 dogs 2 rab

bits and 16 sections of pecten bands (fig 42) The technic of removal of pecten band sections was as follows With a bivalve rectal speculum in the anorectum, a section of tissue was removed about 1 cm wide extending from the anal verge to a little above the pectinate line and about 1 to 5 mm deep, depending upon visible thickness of the band The sections were stained with H E Van Gieson's (figs 43-44), Mallory and Mason's stains These original investigations were carried out during the years 1938—1942

To familiarize ourselves with the microscopic histopathology of the pecten area we set down the following questions which, when answered, helped establish pectenosis as a definite pathologic entity (see charts 1 7)

Question No 1 What layers of the anal canal are involved in pectenosis?

Answer Pectenosis is essentially a disease of the subepitheleum of the pecten area No fibrotic changes were noted in the mucosa or the muscularis mucosa

Question No 2 How thick is a pecten band?

Answer The thickest pecten band showed 5,300 microns a little over 5 millimeters the thinnest showed 1 500 microns (1 5 millimeters) (chart 6) The average thickness was of 2 687 microns (2 68 mm)

Question No 3 What are the limitations of pectenosis in relation to the pectenate line?

Answer Although Miles and Abel described the pecten band as limited to the pecten area our investigations revealed the presence of pectenosis above the pectenate line in three of our 16 cases (cases 6 8 14) (chart 6) varying in length from 3,000 microns (3 mm) to 8 000 microns (8 mm) In some of these cases the full length of the band could not be determined since the section was cut at the limits of the distance noted above This corroborated our clinical impressions previously reported, that the pecten band extends above the pectinate line

Question No 4 Of what does the pecten band consist?

Answer The subepithelium of the pecten area involved in pectenosis revealed polymorphonuclear leukocytes, lymphocytes, fibrous

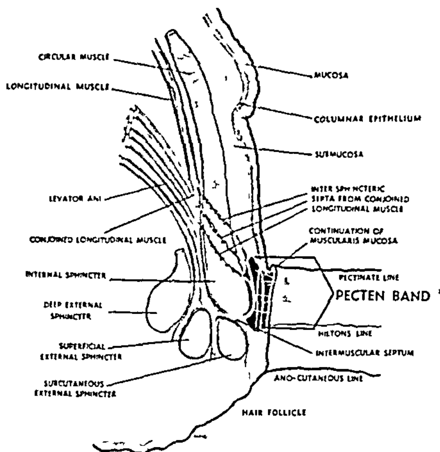


Fig 41 Pecten Band and its Contents

The above schematic illustration shows the location and constituents of a pathologic pecten band (solid black). Pecten bands are found between the anal epithelium and the sphincter muscles from Hilton's line to the pectinate line and vary in thickness from 1.5 to 4.5 mm. The solid black (1) in the pecten band indicates varying amounts of fibrous connective tissue (average about 64%). The lighter striped bundles (2) are smooth muscle tissue fibers continuations of the muscularis mucosa. The remaining lighter striped bundles (3) are terminal smooth muscle fibers from the inter-sphincteric septa through the internal sphincter and the intermuscular septum both originate from the longitudinal and conjoined longitudinal muscles

connective tissue hyalinization and smooth muscle fibers The fibrous

connective tissue in the pecten area ranged from 90% to 25%, while the smooth muscle tissue ranged from 50% to 5% Only one case showed 75% smooth muscle tissue Taking in all of the slides, smooth muscle tissue averaged 38% while fibrous connective tissue averaged 62% This data suggested to us that the pecten band is a fibromuscular structure (fig 41)

Question No 5 In what anorectal conditions are pecten bands found?

Answer Pecten bands in the above series of cases were found in patients suffering from cryptitis, papillitis, fissure in ano, pruritus and fistula, and hemorrhoids

Question No 6 Is there a relationship between the duration of the disease and the histopathologic findings in the submucosa?

Answer It is our impression from a correlation of the histopathologic changes noted that the longer the duration of the complaint the more fibrotic and hyalinized was the pecten band (chart 6)

Question No 7 Is pectenosis a fibrosis of the external sphincter muscles?

Answer In the majority of the pecten band sections we found varying amounts of muscle fibers However careful histologic studies with Van Gieson and Mallory stains showed that these fibers were smooth muscles, in no case were striated fibers found Therefore we have found no histologic evidence that the process of pectenosis is a fibrosis of the external sphincter

In order to make a comparative study of normal and pathologic pecten areas we examined microscopically 11 human adult anorecta taken by biopsies of persons who expired from other than anorectal disease We made comparisons of the same regions of 5 new and prematurely born humans 3 dogs and 2 rabbits This study included sections stained with H E Van Gieson s Mallory and Mason s stains The following questions were considered and answered

Question No 1 What is the depth of the normal muscularis mucosa?

Answer The average depth of the muscularis mucosa in normal adults was 60 microns (chart 1) the average depth of the muscularis mucosa in the new and prematurely born was 36 to 10 microns (chart 1) the average muscularis mucosa in dogs was 60 microns (chart 3) the average muscularis mucosa in rabbits was 10 microns (chart 2)



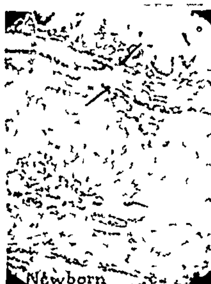






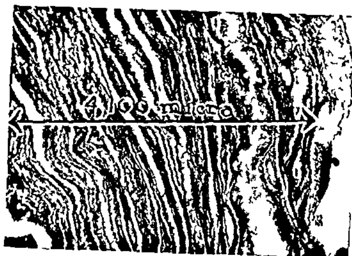
Fig 42 Shows normal mucosa muscularis mucosa submucosa and muscles of the anorectum in the normal human adult newborn dog and rabbit The average subepithelium in the normal adult was 368 micra in thickness around the pectinate line

A *Adult* Case no 568 Stain H and E L.P 120 X

B *Newborn* Case no 580 Stain H and E L.P 120 X

C *Dog* Case no D 1 Stain H and E L.P 120 X

D *Rabbit* Case no Y Stain H and E L.P 120 X



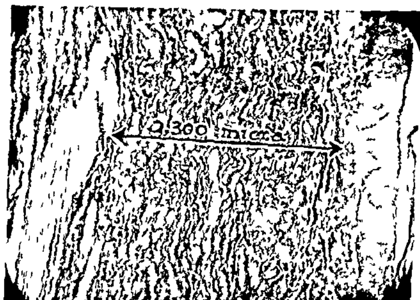


FIG 43 (TOP) CASE 11 STAIN VAN GIESEN S L.P 120 X

Shows a pecten band 4 100 micra in thickne s taken from a patient suffering from cryptitis hemorrhoids and pectenosis one year duration The pecten band presents fibrosi hyalinization and mooth mu cle fibers

FIG 44 (BOTTOM) CASE 2 STAIN VAN GIESEN S L.P 120 X

Shows a pecten band 2,300 micra in thickne s taken from a patient suffering from anal fi ure and pectenosis of several years duration The pecten band presents dense fibro is

CHART 1 NEWBORN AND PREMATURE CONTROL CASES SHOWING AVERAGE SUB PECTEN AREA DEPTH IN MICRONS

Case No	Depth of Muscularis Mucosa	Depth of Sub Pecten Area	Histologic Findings
1	30	200 to 500	Areolar Tissue Vein Arteries Fibroblasts
2	30	200 to 800	Areolar Tissue Veins Arteries Fibroblasts
3	40	300 to 800	50% Smooth Muscle Fibers
4	30	200 to 600	
5	40	200 to 400	
Average Depth	34	200 to 580	

Question No 2 Does the muscularis mucosa extend below the pectinate line as described by Peterson Bremer Branca and Verne and Fine and Laus?

Answer In some sections of humans newborns dogs and rabbits the muscularis mucosa appeared to terminate at the pecten area while in other specimens smooth muscle bundles appeared to arise and continue from the muscularis mucosa caudad to the pecten area

CHART 2 RABBIT CONTROL CASES SHOWING AVERAGE SUB PECTEN AREA DEPTH IN MICRONS

Case No	Depth of Muscularis Mucosa	Depth of Sub-Pecten Area	Histologic Findings
1	30	600	Areolar Tissue Fibroblasts Elastic Fibers Collagenous Fibers
2	30	600	
Average Depth	30	600	

Question No 3 Is a pecten band ever found in a normal subpecten area?

Answer Among our adult control cases we found only 5 with no apparent pathologic process in the submucosa and subpecten area (chart 4) In 9 cases hemorrhoidal varicosities were present (chart 5) Among the 9 cases with hemorrhoidal varicosities an abundance of

fibrotic changes was evident in 7 cases (chart 5) In the 5 normal control cases there was no evidence of fibrosis in the submucosa or the subpecten (chart 4)

CHART 3 DOG CONTROL CASES SHOWING AVERAGE SUB PECTEN AREA DEPTH IN MICRONS

Case No	Depth of Muscularis Mucosa	Depth of Sub Pecten Area	Histologic Findings
1	40	450	Elastic Fibers Fibro Areolar Some Smooth Muscle
2	40	500	Mostly Collagenous Fibers Fibroblasts
3	40	800	
Average Depth	40	583	

Question No 4 What is the depth of the subpecten area in normal adult control cases?

Answer The average thickness of the subpecten area in the 5 adult normal control cases was 310 to 760 microns or 33 to 75 of a millimeter

(a) The maximum was 600 to 1 000 microns and the minimum 100 to 400 microns (chart 4)

CHART 4 NORMAL ADULT CONTROL CASES (ABSENCE OF PATHOLOGIC CHANGES ABOVE AND BELOW THE PECTENATE LINE) SHOWING AVERAGE SUB PECTEN AREA DEPTH IN MICRONS

Case No	Depth of Muscularis Mucosa	Depth of Sub Pecten Area	Histologic Findings
1	90	300 to 900	Elastic Fibers Fibroblast
2	80	400 to 600	Areolar Tissue Collagenous Fiber Veins
3	60	400 to 800	Arteries Vein Areolar Tissue
4	50	300 to 900	Arteries Veins Areolar Tissue
5	60	600 to 1000	Arteries Veins Areolar Tissue Fibroblasts
Average Depth	68	400 to 800	

(b) The average thickness of the subpecten area in the 9 adult control cases with hemorrhoidal varicosities was 966 to 1,644 microns or 0.96 to 1.6 millimeters, the maximum being 1,500 to 2,200 microns and the minimum 600 to 1,000 microns (chart 5).

It will be seen that the thickness of the subpecten area in normal control cases (in the newborn and premature specimens) was 250 to 580 microns (.25 to .58 mm.) (chart 1), the dog 150 to 800 microns (.66 mm.) (chart 3), and the rabbit 600 microns (0.60 mm.) (chart 2), making the average about .5 millimeter, which compares approximately with 0.33 mm. to 0.75 mm. found in normal adult control cases.

CHART 5. PATHOLOGIC ADULT CONTROL CASES (PRESENCE OF PATHOLOGIC CHANGES ABOVE AND BELOW THE PECTENATE LINE), SHOWING AVERAGE SUBPECTEN AREA DEPTH IN MICRONS

Case No.	Depth of Muscularis Mucosa	Depth of Subpecten Area	Histologic Finding
1	60	800 to 1600	Dilated Vein, Fibrous Connective Tissue, Muscle Fibers
2	60	700 to 1500	
3	60	800 to 1900	
4	60	1000 to 1800	
5	50	800 to 1000	
6	50	1500 to 2200	
7	50	1700 to 2000	
8	60	800 to 1800	
9	60	600 to 1000	
Average Depth	56+	966 to 1644	

In the adult control cases where pathologic changes were evident in the pecten area, the thickness of the subpecten area was increased 960 to 1,644 microns (.96 mm. to 1.64 mm.). This was again found to be increased in the pecten band sections where the thickness rose 1,500 to 5,300 microns (1.5 mm. to 5.3 mm.).

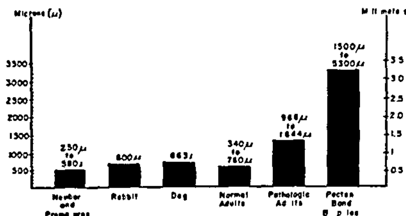
These figures and facts give further evidence that pectenosis is a pathologic entity, especially since the difference between .5 mm. depth of the subpecten area found in the newborn and normal adult control

CHART 6 PECTFN BAND STUDY

C N	D pth f P t B d	P t g f Mu l d F br C c t T	L gth f P t B d b P t te Li	P th l g c F d g	D gn of U d ly g C d t D g	D t
1	1800μ			F b d Hy l t	Pr t A F	2 ye s
2	300	C T 75% M 5%		D F b	F e P t	S l ye
3	3 0	C T 5% M 75%		I filtr t n	H m h ds C ypt P p ll	S l y ars
4	5300			D F b d Hy l t	F A	1 y
5	300	C T 0% M 30%	7000μ	I filt t d Hy l i t	P t A F H h d	S l y
6	3600	C T 90% M 10%		F b i	F H m h d	1 y
7	3000	C T 50% M 50%	4000	Hy l t n	F H m h id	S l y s
8	100	C T 50% M 50%		I filt ti a d Hy li i t	F e H m h d	1¼ y
9	3400	C T 60% M 40%		F b d Hy li t	C ypt H m h d	1 y r
10	1900	C T 80% M 0%		F b d Hy l t	F t l	4 y
11	1800	C.T 75% M 5%		I filt ti	F t l	3 m th
12	3800	C T 95% M 5%		F b d I filt t	H m h l	4 m th
13	1500	C T 50% M 50%	3000	F b d Hy l ti	F t l H m h d	S l y
14	000	C T 50% M 50%		F b i	F	1 y
15	3000	C T 0% M 50%		F b i	F	1 y
16	3900	C.T 80% M 0%		F b i	F l	3 y

cases and 5.3 mm found in pecten bands was occupied by products of passive congestion and chronic inflammation, fibrous connective tissue and hyalinization

Our histopathologic studies convinced us that pectenosis is not found in the newborn or in the recta of normal adults but is a pathologic entity caused by chronic passive congestion and inflammation, as first suggested by Miles and Abel



Origin of Smooth Muscle Fibers in Pecten Bands

Although sufficient evidence had been gathered by our investigation to establish beyond any doubt that pectenosis is a definite pathologic entity our investigations were discontinued and our findings were not published because of the frequent unexplainable discovery (microscopically) of smooth muscle fibers in the biopsies of sections of pecten bands We felt that we should wait until we were able to explain the origin of these muscle fibers We were certain they were not portions of the internal sphincter muscle because in most biopsies we were able to define the borders of the internal sphincter separated from the band tissue Also we were certain they were not external sphincter muscle fibers because no voluntary fibers of the external sphincter intermingled with a pecten band or vice versa We were also certain that the sections removed for study were grayish white fibers which Abel stated were distinguishable from muscle fibers by their mahogany color Where then did these microscopic muscle fibers come from? Because of this missing link our findings at that time were never presented for publication We wrote Abel in 1938 about this peculiar discovery and the following

reply was received "I think the answer to your first question is that of course fibrous tissue varies a great deal It may be only a millimeter, and immediately under that muscle is found So that, unless a very small portion is removed, you are bound to find muscular tissue as well as *fibrous tissues in the microscopic examination*"

His interesting reply agreed with our findings of muscle fibers in pecten bands, but did not supply the answers we were seeking I continued however, to recognize and incise pecten bands with the usual good results and my enthusiasm never waned Our search and study was resumed with another co worker Carl Ross, and I am happy to state that this research was rewarded by the excellent published anatomic studies of Levy Gorsch and Milligan and Morgan as well as by corroboration of *our findings of unstriated muscle intermingled in our* sections of pecten bands by Abel, Whitney, J W Morgan, and Fine and Laws

Milligan and Morgan Levy, and Gorsch have shown 'how the longitudinal *muscle comes down the outside wall of the rectum, ensheaths* the various portions of the external sphincter, and then becomes attached to the skin at the anal verge and in the intra anal area at the 'intermuscular septum which is the pecten area' This supplied one explanation for the presence of smooth muscle fibers in the majority of our pecten band sections

The interesting studies of Fine and Laws maintain that the smooth muscle bundles in the pecten area are the termination of the muscularis mucosa ani They quote Bremer Branca and Verne, who concurred in their findings However, they admit in their papers that "all specimens of sectioned pecten bands contained involuntary muscle fibers some consisted of compact muscle bundles with hardly any fibrous connective *tissue others contained an equal* amount or an excess of fibrous tissue' Their own findings suggest that they were examining pecten bands composed of fibrous connective tissue and bundles of smooth muscle We agree with Fine and Laws about the constituents of pecten bands and the possible origin of the contained smooth muscle fibers but we *cannot agree that this fibromuscular* band is a new muscle because all band tissue studied contained large amounts of fibrous connective tissue products of passive congestion and inflammation

Levy states that the submucous longitudinal layer of muscle (Sustenator mucosae of Ruedinger) with its terminal branches of the su*perior hemorrhoidal* vessels fuse at its lower end with a septum from

the conjoined longitudinal muscles.' His illustration of this anatomy further shows how fibers from the conjoined longitudinal muscle pass through the internal sphincter muscle at several points and then pass down the submucosa where they enter the subpecten area. These findings of Levy offer another suggestion as to the origin of the smooth muscle fibers commonly found in sections of pecten bands.

We have therefore concluded that the smooth muscle fibers found in our specimens of pecten bands as well as those reported by Whitney and Fine and Laws are terminal branches of the conjoined longitudinal muscle and branches of the muscularis mucosa or both (fig. 11). However, these interesting and valuable anatomic contributions explain only the origin of this common finding in pecten band sections but do not in any way detract from our findings of an abundance of dense fibrous connective tissue in pecten bands. We are only offering an explanation for part of the constituents of a pecten band, a confusing fact in the past.

Grayish White Fibers and Smooth Muscle

One more problem still remained to be explained. If these removed sections of pecten bands, which we were certain, were all grayish white fibers contained smooth muscle fibers, why then did we not see intermingled mahogany fibers as we cut through pecten bands and removed sections? Fine and Laws supplied the answer by quoting Cajal, who states that "untreated muscle can also appear pale simulating connective tissue." Now we had an answer to our last puzzling question and we realized that some of the grayish white fibers which we were removing were smooth muscles simulating connective tissue.

We were now definitely satisfied that our histopathologic studies of the recta of adults, newborn rabbits and dogs, as well as the stained slides of removed pecten bands completed in 1912, proved without a doubt that true pecten bands are not found in normal recta. They proved also that the pecten band of Miles and Abel is a definite fibromuscular pathologic entity consisting of varying stages of fibrous connective tissue intermingled with terminal branches of the conjoined longitudinal muscle and the muscularis mucosa. We feel that these conclusions will materially change the proctologic conception and treatment of anal diseases. We are indebted to Milligan and Morgan, Levy and Gorsch for their contributions which have helped us to explain the source of the existing involuntary muscle fibers in pecten bands,

to Abel, Whitney, Morgan, and Fine and Laws for their corroboration of our findings of pecten bands intermingled with involuntary muscle fibers, and to Cajal for explaining the fact that involuntary muscle fibers can and do appear as grayish white fibers similar to fibrous connective tissue

INCISION OF THE EXTERNAL SPHINCTER IN FISSURE IN ANO OPERATIONS

We feel certain that a proper understanding of pectenosis will render unnecessary the common practice of incising the sphincter muscle in the management of fissure in ano and other conditions associated with pectenosis We have found over a period of 15 years that the anal canal will relax just as soon as the grayish white fibers of the pecten band are incised We also feel that many proctologists and general surgeons are cutting the pecten band in fissure operations believing it to be the external sphincter This procedure is quite understandable because we, too, thought that the pecten band was the external sphincter before we understood pectenosis If one will familiarize himself with the operation of pectenotomy and note the complete relaxation which occurs after incision of the pecten band, he will never again cut the sphincter muscle in fissure in ano operations

ANORECTAL DIVULSION

We also feel that a proper understanding of pectenosis will negate the necessity of divulsion of the anorectum Divulsion is an unnecessary unsurgical procedure which causes the formation of a worse pecten band than that which existed before divulsion We believe that recurrent fissure in ano is partially the result of increased pectenosis following divulsion Prior to our knowledge of pectenosis recurrence of fissure in ano following divulsion was one of our unhappy experiences Since performing pectenotomies we have not had to repeat a single pectenotomy for fissure in ano We feel that stretching of the anal canal tears the fibers of the pecten band and that the result of this trauma causes a worse band to form Abel (1932) stated that 'the old ed procedure of stretching the sphincters produces a ruptu bers of the pecten band in many sually with multipl tra vasation of blood among nd consequently formation of fibrous tissue'

Morgan, in 1931, stated t ration for fis

necessary to incise any of the fibers of the external sphincter. In operations upon anorectal conditions one often has difficulty with a narrow orifice and most surgeons therefore practice divulsion as a routine procedure. This is always dangerous. It produces contusions and may result in the development of hematomata and abscesses, but the harm lies mainly in the tearing of the underlying tissue or even the bowel wall itself, producing a further fibrosis and associated congestion and as a consequence the creation of a vicious circle which still further devitalizes the part, to say nothing of the possible damage to the delicate nerve plexus which we have seen must play an important role in the maintenance of that balance which is so necessary for perfect function. Hiller in 1931 stated that partial and permanent sphincter

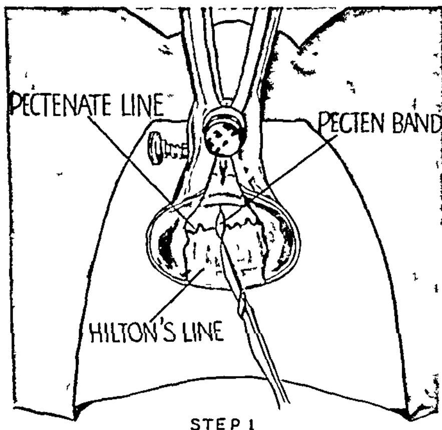


Fig. 45. Pectenotomy. Step 1.

Directly over the midline posteriorly an incision is made through the mucosa parallel to the long axis of the bowel extending from above the pectinate line. Note grayish white fibers below mucous membrane.

injury following divulsion has been observed by Melchoir, Clairmont, and others

OPERATION FOR PECTENOSIS

The operation of pectenotomy for the relief of pectenosis is performed as follows With the patient in the lithotomy position, the anal canal is exposed with a bivalve speculum and an incision is made parallel to the long axis of the rectum in the posterior area, a little to the right or left The incision is made from above the pectinate line to below Hilton's line (fig 45) Immediately below the incised anal epithelium the white fibers of the pecten band come into view (fig 46) The band usually extends above the pectinate line and a little below Hilton's line The incision is then continued through the full thickness of the band

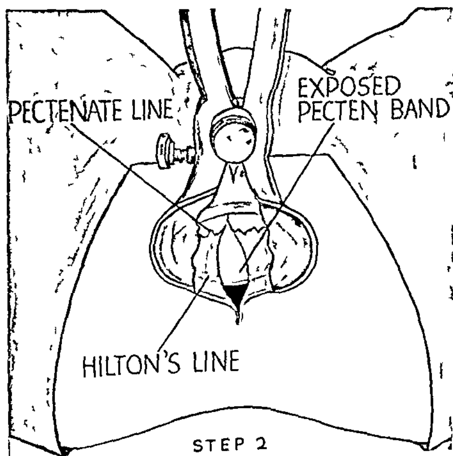


FIG 46 PECTENOTOMY STEP 2
Pecten band exposed ready to be incised in the midline

until the smooth grayish white fibroelastic septum (one of the terminal branches of the longitudinal muscle fibers) is reached (fig 17) If one should accidentally or purposely cut through this septum the dark orange or mahogany fibers of the sphincter muscle become visible No harm is done if the septum is incised but it is not necessary to do so This area is very vascular and bleeding vessels must be controlled *As the band is incised the anal canal is felt to spread apart* Where only one finger was previously admitted four fingers now pass comfortably into the rectum The incision is extended to below Hilton's line for about 2 cm and widened at its outer end to facilitate better

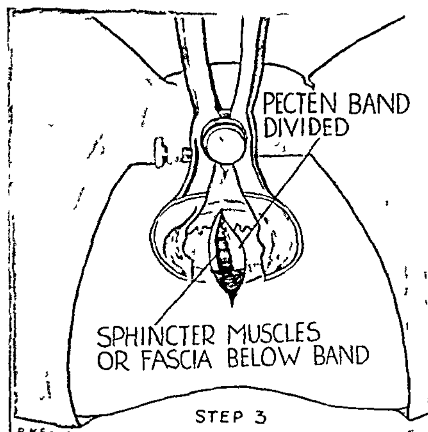


Fig 1[illegible] Pectenotomy Step 3

The incision is carried deeper until complete thickness of the dense grayish white fibers of the pecten band are divided and the fascia or reddish brown fibers of the external and internal sphincter are visible

tendon of the perineum. These fibers separate at the posterior aspect of the anus and unite anteriorly. Other fibers completely encircle the anus. Because of this arrangement, a triangular space is created posteriorly (Minor's triangle) and a smaller triangle anteriorly. The anal epithelium overlying these triangles is not as well supported as elsewhere. Other important reasons for the development of fissures posteriorly are the poor blood supply of the anus, the congenital narrowing of the anal canal, and the concavity of the sacrum which makes the curvatures of the rectum and the anal canal receive the greatest force at the posterior commissure during expulsion of the stool.

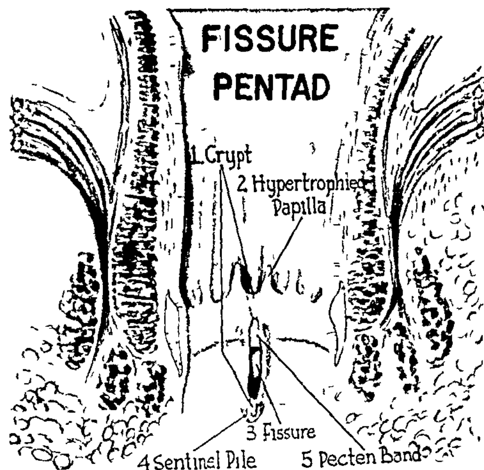


FIG. 18. FISSURE PENTAD.

Fissure in ano is not only a crack or ulcer in the anal canal. *It is usually associated* with four other conditions: a crypt, a papilla, a sentinel pile, and a pecten band (plus the fissure itself), making a total of five, from which the name *Fissure Pentad* is derived.

Pathologic Anatomy —Other predisposing causes are cryptitis, papillitis constipation and pectenosis

Active Causes —Fissures are usually caused by trauma following a large constipated stool passage of a foreign body, instrumentation straining sneezing or coughing

PATHOGENESIS

Chronic cryptitis papillitis and passive congestion result in the formation of a fibrous connective tissue band in the anal canal known as the pecten band (see chap 7) This band prevents normal relaxation of the anal sphincters This, occurring in conjunction with a frequently existing friable crypt in the posterior quadrant plus the congenital weakness of this area (Minor s triangle) and the poorly nourished modified anal skin precipitates a crack or split of the anal epithelium (fissure) when trauma occurs

At first the fissure is superficial and not indurated If not properly treated early, secondary infection and further trauma cause the laying down of more fibrous tissue around the fissure with a consequent thickening of the pecten band This stage is now known as the irritable chronic fissure or ulcer At the distal end of the fissure a hypertrophy of the skin results in the formation of a skin tag known as a sentinel pile completing the five conditions making up the *fissure pentad* Extension of the infection from a fissure and its associated crypt occasionally results in an anorectal abscess and fistula

COMPLICATIONS

Anorectal abscess and a resulting fistula may occur as a result of a deeper extension of the infection Simple pruritus ani may occur because of the presence of an irritating discharge from the fissure Constipation occurs because of the individual s reluctance to have a bowel movement in view of the severe attendant pain Because of the nature of the innervation in this region reflex pains to the back posterior thighs adnexa and bladder may occur

SYMPTOMS

Pain —This is the most common and important symptom of fissure It may occur at the time of defecation with severe lancinating pain which gradually subsides over a period of from minutes to hours or

there may be little or no pain during defecation but a history of burning pain coming on soon after defecation and lasting several hours The first type of pain usually occurs in acute ulcers and is due to irritation of exposed nerve endings The second type of pain is usually encountered in chronic ulcers and is due to reflex sphincteric spasm This spasm persists until the muscle is exhausted, hence the long duration of pain

Bleeding is usually small in amount, streaking the toilet paper and stools, but it may be profuse if any small arteries traverse the fissure and are traumatized If the condition has been present for any length of time the patient may complain of increasing anal tightness which is usually due to the fact that the pecten band is increasing in thickness and is contracting, as fibrous connective tissue is prone to do

Pruritus may occur because of the discharge previously mentioned

Constipation or obstipation is the rule in long standing cases because of the associated pain and anal narrowing

DIAGNOSIS

This is based on a history of the sudden onset of pain following the passage of a hard stool which lasts for several hours with the presence of a small amount of blood on the toilet paper and fecal mass There is also recurrence of the pain following succeeding bowel movements

Objective findings are those of a crack or split in recent cases or of a hard indurated ulcer in old cases, located in the posterior or anterior midline, plus a sentinel pile, an underlying crypt a hypertrophied papilla, and a pectenosis completing the fissure pentad

DIFFERENTIAL DIAGNOSIS

Anal fissure should be differentiated from multiple fissures, which are usually venereal in origin or due to wasting diseases, except for luetic chancre, which is a single lesion Because of the constipation and obstipation one must think of a malignant obstruction higher up Anal carcinoma is more indurated and fixed

TREATMENT

Home Treatment

1 *Mineral oil* one half ounce twice a day
2 Bland diet (no raw vegetables and no raw fruit)

3 Sitz baths morning and night

4 Desitin ointment applied with pile pipe inserted before and after bowel movements and upon retiring. Also Desitin cod liver oil suppositories twice daily.

5 Aspirin compound and codeine to relieve pain.

Office Treatment

1 Local applications of 50 phenol in oil three times a week.

2 If this does not relieve the condition in a few days, Nupercaine in oil (Ciba) 1 cc is distributed under the fissure into the muscle around the fissure and about the lesser sphincterian nerve between the coccyx and the anal verge (figs 49 50). The same injection of Nupercaine in oil is made in the anterior quadrant anesthetizing the anterior portion of the sphincter muscle.

Unfortunately very few acute fissures are seen by the physician at their inception when palliative treatment might be successful. The lack of success in drugstore treatment of early fissure in the majority of cases results in the chronic fissure more commonly seen by the physician. Because the chronic fissure is associated with a tight pecten band, a crypt, a sentinel pile and hypertrophied papillae, the following surgical treatment is in the author's opinion the only satisfactory treatment for chronic fissure.

Surgical Treatment

The complete surgical treatment of fissure should include the removal of the underlying and associated pathology (the fissure pentad). No divulsion is done because the writer considers tearing of the pecten band unsurgical and it usually results in more tightness (more pectenosis) than that which existed before the operation.

If no abscess exists, local and pentothal sodium are administered in the usual way (see chap 5 on Local Anesthesia). 1 With the aid of a bivalve speculum the fissure area is exposed. 2 A crypt hook is placed into the associated underlying crypt and the crypt with its encompassing fissure is excised. The grayish white fibers of the pecten band can now be easily discerned lying at the base of the excised fissure. 3 A knife is then applied incising the pecten band through the middle of the fissure down to the fascia covering the subcutaneous external sphincter. This is recognized by the smoothness and softness of the tissue compared to the circular indurated grayish white fibers of the pecten band. Frequently a few mahogany-colored fibers of the external sphinc

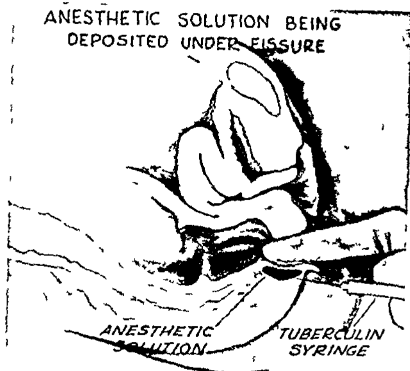


FIG 49 INJECTION TREATMENT OF EARLY FISSURE IN ANO

½ cc of nupercaine in-oil is deposited directly under the fissure using the finger as a guide. This produces a bed of anesthesia under the fissure with resulting relief of pain. The adjoining muscles are also injected. (See fig 50.)

ter are incised along with the pecten band. 4 The hypertrophied papillae adjoining the proximal part of the crypt are now excised. 5 This is followed by the removal of the lateral sides of the fissure from the pectinate line to the anal verge. 6 Considerable bleeding occurs which is easily controlled with the aid of a coagulating ball tip. 7 Now the sentinel pile is widely excised allowing a large enough raw surface to permit complete drainage of the fissure while healing. 8 Any other existing pathology can be removed during the same operation. 9 A belladonna and opium suppository is inserted in the rectum. 10 A cigaret drain with the gauze discarded is inserted half into the rectum and half covering the raw surfaces around the outside of the anus. 11 Over the external portion of the cigaret drain a vaseline gauze is applied which is in turn covered with two pieces of sponge gauze. 12 Over this three rolls of gauze are applied to form a ball pack.

The cigaret drain with all the gauze is removed the next morning Desitin cod liver oil ointment with a pile pipe is inserted each morning for three to five mornings and then every other day until complete healing occurs This pile pipe tip is moved from anterior to posterior gently breaking up granulating fibers which may otherwise cause undesirable anal bands This treatment, continued all through the post operative period makes it unnecessary in the majority of cases to indulge in painful finger dilatation

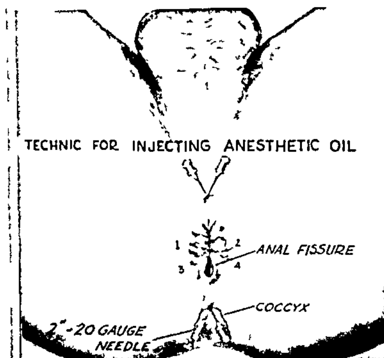


Fig 50 Injection Treatment for Early Fissure in Ano

1 cc of nupercaine in oil is deposited into the sphincter muscles posteriorly and another 1 cc anteriorly A 20-gauge x 2 needle and a tuberculin syringe is used The needle is kept moving to avoid pooling of the solution This puts the sphincter muscles to rest improves the blood circulation to the part and thereby aids in healing

Chapter 11 ABSCESS OF THE ANORECTUM

An abscess in the anorectal region is the same as an abscess in any other part of the body. However, anorectal abscesses tend to be complicated by fistulas.

Classification (fig. 51)

Infralevator Abscess.—This group embraces all those abscesses occurring below the pelvic diaphragm (levator ani), which are much more commonly found than those above the pelvic diaphragm. The following are the various types encountered:

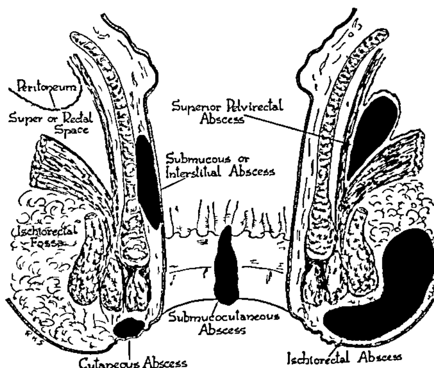


Fig. 51. Abscesses of the Anorectum.

Types of Infralevator Abscess

Cutaneous
Submucous (marginal)
Ischiorectal
Unilateral
Bilateral (horseshoe)

Supralevator Abscess—This group deals only with abscesses occurring above the pelvic diaphragm which are seen only occasionally

Types of Supralevator Abscess

Submucous (interstitial or mural)
Superior rectal space
Retrorectal

The inflammatory process may be circumscribed (walled off) or it may be a diffuse perianorectal cellulitis

ETIOLOGY

Predisposing Causes—The following predisposing causes embrace all types of anorectal abscess cryptitis papillitis fissure in ano anorectal strictures perianal dermatitis folliculitis, unoperated gangrenous strangulated hemorrhoids cancer diabetes tuberculosis syphilis diarrhea and dysentery

Age—Most common between the ages of 20 to 50

Sex—More common in males

Exciting Causes—The closure of the entrance of an infected crypt by fibrous anal contraction (pectenosis) or by a seed fruit pit or other particles of ingested food embraces an important group of exciting causes Other important causes are the extension of an infection through the lymphatics following an abrasion from hard particles foreign bodies inexpert use of the enema tube a fissure following a hard stool or extension of an infection from an anorectal carcinoma stricture etc or extension into the deeper anorectal structures following anorectal surgery in a patient with lowered resistance or highly virulent colonic bacteria The bacteria most commonly associated with anorectal abscesses are B coli staphylococcus and streptococcus Contrary to general opinion the tubercle bacillus is an infrequent cause of anorectal abscesses (3 to 5 per cent) and is found only in patients with active pulmonary

tuberculosis Very rarely one may see a tuberculous abscess in a case of bovine tuberculosis A good rule to follow is *no lung tuberculosis no anorectal tuberculosis*

Some important extrinsic causes that should be considered are the extension of an infection from the urethra prostate seminal vesicles and uterine adnexa The unusual amount of cellular tissue surrounding the anorectum, the lavish blood supply, the constant presence of pyogenic bacteria, and the rich lymphatic supply play an important part in the production and extension of septic inflammation in this area

Most anorectal abscesses start in an infected crypt and only occasionally by spread from the lymphatics After the abscess has formed the pus burrows in the path of least resistance depending on the host's tissue resistance and the location The swelling redness, fluctuation increased temperature, and increased white count are the same as elsewhere in the body

GENERAL TREATMENT RULES

Pain and induration with palpable fluctuation increased afternoon and evening temperature and increased white count, suggest immediate incision and drainage Make a cruciate incision over the most fluctuant part of the abscess and then trim the corners A stab wound for any of the various types of abscesses is not sufficient drainage The incision should be made in the quadrant that is as close to the internal opening as is possible to determine Insert the index finger into the abscess cavity and break up all trabeculae, converting the many trabeculae into one large cavity (fig 52) The crypt or fistulous opening leading into the abscess should also be incised at this time Use sufficient general anesthesia to permit fingering of the abscess cavity Gas or pentothal or both is preferred Local should never be used Paint the cavity with equal parts of tincture of iodine and carbolic acid Pack the cavity with iodoform gauze and remove in one to two days Do not insert any more gauze Keep the opening of the abscess patent to insure proper drainage and healing from the bottom up Hot sitz baths morning and night are recommended Penicillin 100,000 units twice daily Terramycin 250 mg three times daily, or Achromycin 250 mg three times daily is good adjunct treatment Desitin cod liver oil ointment *should be* inserted into abscess cavity until healing is completed Tuberculous abscesses are

treated as any other abscess plus adjunctive tuberculous treatment (see chap 21)

We have seen many patients who have had an abscess opened and drained the draining continuing for months and months with their physicians using various types of medicaments and treatments in hope of obtaining a closure On the other hand, we have seen other patients with abscesses incised and drained with closures after a few weeks, only to return with more recurrent abscesses in the weeks or months to follow

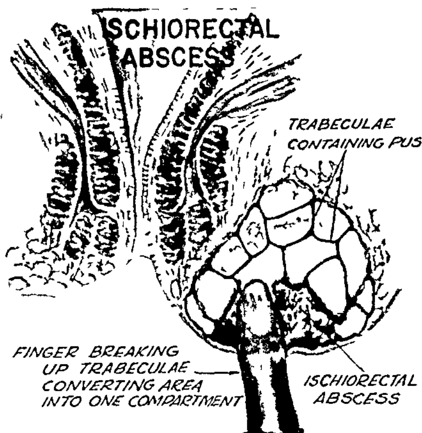


FIG 52 TREATMENT OF AN ISCHIORECTAL ABSCESS

It is not sufficient just to incise an ischiorectal abscess One must excise a skin area about the size of a silver dollar and then break up the trabeculae in the abscess cavity converting the abscess into *one* compartment This should be done only in a hospital with the patient under a general anesthetic We also incise the accompanying fistula at the same operation making it unnecessary for the patient to have a second future operation

We have found that practically all anorectal abscesses have a crypt (internal blind fistula) leading to and probably responsible for the abscess. We feel that such crypts or internal blind fistulae can and should be incised at the same time the abscess is drained, saving the patient expense and a second trip to the hospital. For the last fifteen years we have been performing both operations at the same time with no untoward complications and with only good results.

INFRALEVATOR ABSCESSES

CUTANEOUS ABSCESS (PERIANAL FOLLICULITIS, FURUNCLE)

Symptoms.—The symptoms are like those of any furuncle.

Treatment.—The surface of the furuncle and the surrounding area are painted with tincture of iodine, permitted to dry, and followed by 90 per cent alcohol. The apex of the pustule is then scraped off with a scalpel. Following this, *a fine wooden applicator dipped in 95 per cent phenol* is inserted into the depth of the infection.

SUBMUCOCUTANEOUS ABSCESS (MARGINAL, SUBTEGUMENTARY)

Symptoms.—The usual onset is that of a sharp, shooting, anorectal pain which is soon followed by a constant, increasing, aching, throbbing pain. There is also an associated increase in pulse rate, rise in temperature, and difficulty in sitting and urinating.

This abscess may terminate by draining through the internal opening in the fissure or crypt, and thus form an internal blind sinus, or it may break through the skin, or it may be opened surgically, forming a complete fistula. It may spread to the ischiorectal fossae on one or both sides.

Diagnosis.—The diagnosis is based upon a round swelling, reddened in color, with or without fluctuation. Occasionally the swelling and redness is not visible. Where an abscess is suspected because of continuous pain, elevated evening temperature, and increased white count, a *bidigital examination* will clinch the diagnosis. With the thumb on the outside and the index finger in the anorectum, the examiner palpates the entire circumference; this reveals an indurated, non-visible swelling (see fig. 27). Pus can usually be found upon aspiration with a needle.

Treatment.—See general treatment principles (p. 91).

ISCHIORECTAL FOSSAE ABSCESS

This is one of the most common forms of anorectal abscess

Symptoms—The symptoms here are similar to those of a submucocutaneous abscess but are more severe The patient may develop chills high temperature severe headaches backache fetid breath languor and more or less prostration The pain is constant and is aggravated by bowel movements Frequently the patient is unable to urinate has difficulty in sitting and has increased pain on coughing

Diagnosis—The diagnosis is based upon swelling and redness over one or both ischiorectal fossae plus increased temperature and white count Upon palpation fluctuation is usually demonstrated Aspiration will reveal pus

Treatment—See general treatment principles (p 94)

SUPRALEVATOR ABSCESS

SUBMUCOUS (INTERSTITIAL OR MURAL)

This abscess occurs in the submucosa between the mucosa and the muscular coats It is usually found in the lower three inches of the rectal wall above the pectinate line and at any point in the circumference of the rectum

Symptoms—The patient may complain of a constant dull ache and a feeling of weight in the rectum Bowel movements tend to increase the discomfort when the abscess is far advanced and irritability of the levators is present Associated with these localized symptoms are constitutional manifestations such as fever headache languor, and increased temperature and white count

Diagnosis—*The lubricated finger inserted into the rectum detects an* oval bulging in the rectal wall which is either firm or boggy and very tender

Treatment—The mucosa over the abscess must be divided the full length of the abscess The anal canal is dilated the abscess is exposed a groove director is inserted to the upper end of the cavity and the overlying tissues are divided with a knife The cavity is packed with iodoform gauze which is left in place one or two days This is followed by daily hot enemas consisting of 5 drops of tincture of iodine to one pint of water Hot sitz baths twice a day and other general treatment as advised on page 94

SUPERIOR PELVIRECTAL (PERIRECTAL ABSCESSES)

These abscesses are rather rare and present much greater problems than the previous types They develop in the loose cellular tissue occupying the perirectal space between the peritoneum above and the levator ani below

Etiology—This condition usually follows injury to the rectal wall by a foreign body, it may be secondary to a rectal stricture or it may be the result of extension from an infection of the prostate, urethra seminal vesicles, it may arise from the broad ligaments or Bartholin glands in the female or it may be caused by extension of infection in a postoperative wound in a patient with lowered resistance or in one having highly virulent bacteria

Pathology—This type of abscess usually burrows upward beneath the peritoneum and sometimes ruptures into the peritoneal cavity, or it may rupture into the bladder or urethra, or it may burrow up to the posterior abdominal wall around the kidney, causing a *perinephritic* abscess, or it may fill the space between the peritoneum and the posterior wall of the entire abdominal cavity, or it may rupture into the rectum

Symptoms—The patient may complain of a bearing down weighty pressure sensation in the rectum, urgency, and sometimes *frequency* of bowel movement Other symptoms such as a sudden onset of chills and urinary retention may occur There is an accompanying leukocytosis Pain may be present over the sacrum, deep in the pelvis, around the kidney or even in the chest if the pus reaches the diaphragm We had one case that simulated acute appendicitis and lung abscess without any rectal findings or rectal discomfort

In the chronic draining state, there is a persistent intractable purulent discharge which emanates from one or more external openings around the anal verge

In rectal strictures the complicating superior rectal abscess produces chronic rectal discharge *through one or several rectal openings*

Diagnosis—*This condition is diagnosed by palpating a boggy bulging mass on the lateral rectal wall, or by a sudden onset of chills, pelvic pain temperature urinary symptoms and increased white count and must* be differentiated from a confined prostatic abscess cystitis *pyelitis* and adnexal pathology

Treatment.—Drainage is made through the ischiorectal fossa dividing the fascia above and below the levator ani muscle as well as the muscle itself. The cavity trabeculae are broken up with the finger, and the area is packed with iodoform gauze. In a female the abscess may be drained by a posterior colpotomy.

RETRORECTAL ABSCESS

Etiology.—Among the more important causes we may mention cryptitis, rectal ulceration, strictures, perforations of the rectum from trauma due to foreign bodies and instrumentation, perianal infections and rectal malignancies.

Symptoms.—The onset of this condition may be marked by chills and fever. The patient usually complains of a feeling of fullness and discomfort in the rectum. Accompanying complaints may be those of sacral and sciatic pain.

Diagnosis.—Palpation of the posterior rectal wall reveals a boggy fluctuant swelling with increased temperature and white count.

Treatment.—The abscess is approached through the ischiorectal fossa or through the posterior rectal wall. The rest of the treatment is practically the same as given in General Treatment Principles (p. 94).

DIFFUSE INFLAMMATIONS

A perianorectal cellulitis should be treated with general and local measures. General measures are the use of penicillin, Terramycin, Achromycin, the sulfonamides, the administration of fluids (orally or intravenously), and by adequate nutrition. When diabetes is present, diet and insulin must be carefully watched. Locally we use hot compresses, sitz baths, drainage when indicated, and x-ray therapy. *Avoid anesthetic in oil injections during surgery of the anorectum*, as some of the worst gangrenous inflammations may result.

Chapter 12 ANORECTAL FISTULA

An anorectal fistula is the suppurating tubular constricted remains of an abscess

CLASSIFICATION (fig 53)

1 *Internal*
  - A Internal Blind Sinus (Submucous)
  - B Superior Rectal Space Sinus (Deep)
  - C Recto Vaginal (Involving adjacent organ)

2 *External*
  - A External Blind Sinus (One Opening)
  - B External Subcutaneous Fistula (Two Openings)

3 *Intero external* (Two Openings—Complete Fistula)
  - A Submuco-cutaneous Fistula (Superficial)
  - B Ischiorectal Fistula (Deep)
  - C Horseshoe Fistula
    - 1) Anterior
    - 2) Posterior

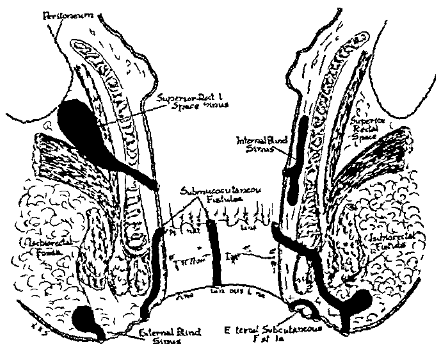


FIG 53 TYPES OF ANORECTAL FISTULAE

A *fistula* has two openings and connects the anus or rectum with the skin around the anal outlet There are two main types submucocutaneous which is usually the sequela of a marginal or submucocutaneous abscess and ischiorectal which follows an ischiorectal abscess Multiple fistulas have many external openings and occasionally more than one internal opening This type is usually of the ischiorectal variety and is commonly known as the watering pot fistula

Horseshoe fistula is just a special type of complete fistula which partially surrounds the rectum crossing from one side to the other There are two types Anterior Horseshoe and Posterior Horseshoe

A *sinus* (also called an incomplete fistula internal fistula or external blind fistula) has only one opening leading into a tract either externally or internally There are two types (1) Blind External 'Sinus" with the opening in the perianal skin and (2) Blind Internal 'Sinus' with the opening in the anorectum

Etiology

Since a fistula is just the tubular contracted remains of an abscess the etiologic factors are those of an abscess The exceptions to this rule are penetrating wounds from without perforation of the rectal wall by carinomatous growths or tracts which drain abscessed areas in the wall of a rectal stricture Such fistulae pursue an atypical course Contrary to general opinion, tuberculous fistulae occur in less than 5 per cent of the cases and are practically never present without an active pulmonary tuberculosis the exception to this rule is the bovine type of tuberculous infection which is very rarely seen in well regulated communities

Pathogenesis

Because of trauma from hard particles found in the stool such as seeds fish bones skin and rough vegetable fibers a normal crypt is injured Infection follows resulting in a cryptitis which in turn produces a papillitis and a fibrous connective tissue band (pectenosis) If the opening of the crypt becomes occluded by fecaliths seeds or a contraction of the anal canal by pectenosis the pus is retained and an abscess follows The abscess either burrows to the outside and breaks open or is incised by the surgeon, forming a complete fistula in either case If the pressure of the abscess forces the opening of the crypt and empties its purulent contents into the rectum the result will be an incomplete or blind internal fistula or sinus

SYMPTOMS

The symptoms should be divided into two stages

1 *Discharging Fistula Stage*
2 *Abscess Stage*

First, there is the *discharging fistula stage* which presents a chronic discharge sometimes associated with pain of short duration accompanying bowel movements There may be a simple type of pruritus ani due to the fistulous discharge

The second, or *abscess stage* presents an interval nondischarging period in which constant pain occurs, which gradually becomes worse Associated with this is swelling which is due to closure of the openings of the fistula and the re formation of an abscess

DIAGNOSIS

The patient usually gives a history of an abscess which has been incised or has opened spontaneously *The internal opening of a fistula is practically always an indurated depression at the pectinate line* The external opening is usually a small papule with a hole in its center which exudes pus on pressure Upon palpation the fistulous canal can be felt as a cordlike tract running from the perianal papule to the indurated depression on the pectinate line A silver probe can be passed in complete fistulae only with a straight tract Methylene blue 1 per cent (2 parts) and hydrogen peroxide (1 part) is a good solution to inject into the external opening with a glass syringe and conical tip to demonstrate a complete fistula *A large caliber needle broken off at the base of the shaft makes an excellent conical tip* A piece of gauze previously placed in the anorectum will stain blue if the tract is complete *The absence of stain on the gauze or cotton does not preclude the fact that a complete fistula may exist* Stereoscopic roentgenograms taken after the injection of a heated fluid paste made of bismuth subnitrate (1 part) and vaseline (2 parts) or the injection of lipiodol are excellent aids in complex multiple tract fistulae The lipiodol can be kept in the fistulous tracts if the external openings of the fistula are plugged up with gauze *Gauze is not opaque to x rays*

Salmon s law is a good law to follow, although it does not hold true in 100 per cent of the cases The law states that when the external opening of a fistula is within 2 inches of the anal opening and anterior to a transverse line bisecting the anus the internal opening is at the pectinate line radially opposite the external opening If on the other

hand the external opening is posterior to this line the internal opening is in the posterior commissure at the pectinate line (fig 54)

Blind Internal Fistulae—These present a history of constant or intermittent discharge from the rectum If the patient strains while the buttocks are separated pus frequently oozes out

Tuberculous Fistulae—These have a large external opening with irregular and undermined edges The surrounding skin has a reddish purple hue and the discharge is scant and watery Tuberculous fistulae are found only in patients with active tuberculosis of the lungs

TREATMENT OF FISTULAE

Anesthetic—Local anesthetic can be used but general anesthetics are preferred because of the presence of infection

Surgical Measures

Incision—The tract running from the internal to the external opening is laid wide open over a groove director All collateral branches are opened The sides are trimmed off converting a tunnel into a

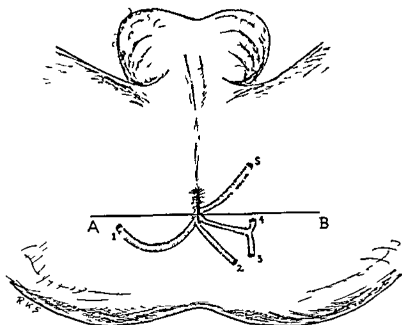


FIG 54 SALMON'S LAW

A B transverse anal line Fistulous openings *1 2 3* and *4* below this line have their internal opening in the posterior quadrant at the pectinate line openings above the line such as 5 have their internal openings at the pectinate line radially opposite the external opening

Chapter 13

HIDRADENITIS SUPPURATIVA (PYODERMA)

THIS ENTITY is not a proctologic rarity, but is a commonly seen chronic skin infection of one or more of the apocrine, sudoriferous sweat glands of the perianal, genital inguinal mammary, and axillary areas The disease occurs only after puberty when the apocrine glands and hair develop in the areas mentioned

Etiology

It is claimed by R L Sutton that hidradenitis suppurativa is caused by a disturbance of lipid metabolism, and is found mostly in well nourished oily skinned individuals It is also believed that the condition is caused by an obstruction of the duct of the apocrine gland with secondary invasion by surrounding bacterial organisms

Pathology

The condition starts as a furunclelike lesion around the perianal area The infection burrows subcutaneously and through lymphatic channels spreading from one nodule to another until there are many infected nodules These nodules break down, presenting fluctuant undermined areas with multiple draining sinuses which may or may not connect with each other If a sinus becomes occluded an abscess occurs

The normally soft elastic skin and subcutaneous tissue becomes indurated, thickened and pocked with granulation tissue protruding from some of the larger openings

Symptoms

The indurated perianal skin with interspersed multiple draining sinuses and intermittent acute recurring abscesses is ample diagnostic evidence although early cases may have one or two discrete nodules

Diagnosis

Indurated pocked perianal skin with interspersed multiple draining

sinuses and intermittent acute recurring abscesses in an adult usually makes the diagnosis (fig 56) There may be only two discreet nodules or the entire perianal area may be dotted with lesions

Probed sinuses may be long or short revealing marked destruction of subcutaneous tissue Sinuses may or may not communicate with each other



Fig 56 Hydradenitis Suppurativa

Note the individual indurated perianal suppurating sinuses which admit a dull tipped probe These sinuses do not communicate with each other

Differential Diagnosis

Hidradenitis suppurativa must be differentiated from multiple ano rectal fistulae by the absence of any internal openings or fistulous tracts running toward the anal canal This condition must be differentiated also from lymphopathia venereum which presents an anorectal stricture and in some advanced cases watering pot sinuses fistulae and a positive Frei test It also has to be differentiated from extensive pilonidal disease which usually confines itself to an area around the coccyx and presents hair protruding from one of the sinus openings over the midline area

Patients with perianal hidradenitis suppurativa occasionally have associated axillary, scrotal and/or labial involvement

TREATMENT

Medical—Sutton and Marks recommend low fat and thyroxine therapy to combat the disturbed lipid metabolism

X ray—Roentgen therapy can and should be tried in the early cases along with penicillin and Streptomycin

Surgical—If the condition does not respond to the above, wide excision is necessary Temporizing incision and drainage is of no value and should not be attempted

Excision should include all of the abscess sinus area and must be extended down into the subcutaneous fat and connective tissue Frequently the area incised is so extensive that skin grafting is necessary

With wide excision, the administration of antibiotics such as Aureomycin Terramycin, penicillin and Streptomycin is good adjunct treatment

Home Treatment—If the incised edges are sewed together sitz baths should not be used until the sutures are removed after which they may be taken twice daily for a month If the wound is left open, dressings of cod liver oil ointment (Desitin) are applied and left in place for four days Then the wound is cleansed with peroxide solution and more cod liver ointment is applied for four more days

Chapter 14 HEMORRHOIDS

HEMORRHOIDS are anorectal swellings composed of varicosities of the branches of one or more hemorrhoidal veins. The presence of these varicosities indicates a degenerative state of the hemorrhoidal plexuses in which the veins have dilated with thinning of their walls resulting in such complications as inflammation, edema, ulceration and thrombosis. Hemorrhoids vary in color from bluish red to strawberry red for the internal hemorrhoids and bluish for the external.

Classification

External Hemorrhoids (fig. 58)	Internal Hemorrhoids (fig. 57)
Varicose	Varicose
Granular (strawberry)	Thrombotic
Thrombotic	Integumentary
Prolapsed	

Intero-external Hemorrhoids (fig. 59)

- Intero-external hemorrhoids without prolapse
- Intero-external hemorrhoids with prolapse
- Intero-external *strangulated* hemorrhoids

INTERNAL HEMORRHOIDS

Classification and Description.—These involve branches of the superior hemorrhoidal plexus. They occur above the pectinate line and are covered with mucosa. The following types of internal hemorrhoids are encountered.

Varicose.—These are simple varicosities in which dilatation has occurred.

Granular (strawberry).—This type is similar to the above with the addition of the symptom of bleeding due to ulceration of the mucosa.

Thrombotic.—Here the varicosity ruptures with the escape of blood under the mucosa forming a clot or thrombus which is bluish in appearance.

Prolapsed.—In the case of a prolapsed hemorrhoid the hemorrhoidal mass with its overlying mucosa has become loosened from its underlying attachment with prolapse from the rectum with each bowel movement

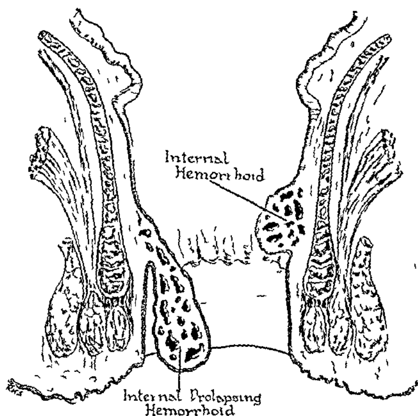


FIG 57 TYPES OF INTERNAL HEMORRHOIDS

EXTERNAL HEMORRHOIDS

Classification and Description—These varicosities involve branches of the inferior hemorrhoidal plexus occurring below the pectinate line and are covered with skin The following types are encountered

Varicose—This type consists of bluish, soft symptomless varicosities located at the anal opening

Thrombotic—These are identical with the internal variety except that bleeding occurs under the skin forming a bluish clot or thrombus varying in size from a pea to a walnut

Integumentary—These are the hypertrophied symptomless tags covered with skin and located around the anal verge

INTERO EXTERNAL HEMORRHOIDS

Classification and Description—These include a combination of internal hemorrhoids intermediate varicosities and external hemorrhoids They present themselves in the following varieties intero-external hemorrhoids without prolapse intero-external hemorrhoids with prolapse intero external strangulated hemorrhoids

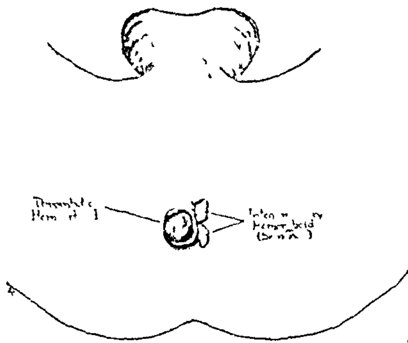


FIG. 8. TYPES OF EXTERNAL HEMORRHOIDS

The thrombotic and integumentary hemorrhoids shown above are the most common types. Varicose (external) hemorrhoids are symptomless flush areas located at the anal opening. The last of the external type is the strangulated hemorrhoid associated with annular edema, thrombosis and necrosis.

ANATOMICAL POSITION OF HEMORRHOIDS

Because of the arrangement and location of the branches of the superior hemorrhoidal vein, internal hemorrhoids are usually found at definite positions in the rectum. These positions are right anterior, right posterior, and left lateral quadrants. As many as five secondary hemorrhoids may develop between the three primary hemorrhoids.

The external variety may occur at any place on the anal verge and it usually indicates the presence of the internal variety in the same quadrant but higher up.

INCIDENCE

Hemorrhoids are most common between the ages of 20 to 50 and are believed to be more common in the male sex. Hemorrhoids are practically never found in infants or children.

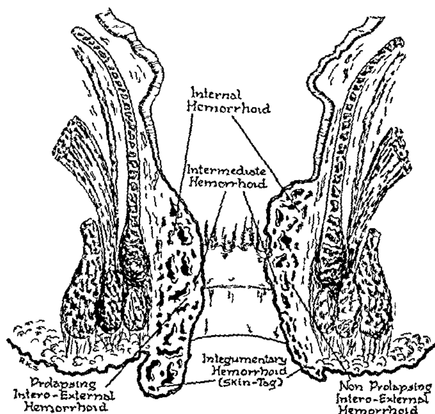


FIG 59 TYPES OF INTERO EXTERNAL HEMORRHOIDS

ETIOLOGY

Heredity —It is an accepted fact that hemorrhoids like varicose tend to run in families and indicate a tendency on the part of veins to weaken and give way when stress or strain is applied

Anatomical Weaknesses —There are no valves in the veins (portal system down to the superior hemorrhoidal vein and its bra This combined with man's upright position and the attending inc venous pressure in these vessels constitutes an important set o disposing factors contributing to the appearance of hemorrho may also be pointed out that the rectal mucosa and submucosa are p attached to the underlying circular muscle contributing to the opment of prolapsing hemorrhoids

Occupation —Occupation may contribute to the development o increased venous pressure Individuals who stand for long perio time in one position or those who do such work that the abdo

contents are compressed interferring with venous drainage, are subject to the development of hemorrhoids

Exciting Causes —Exciting causes may be divided into two categories those conditions occurring within the lumen or walls of the anus and rectum and those conditions occurring away from the anorectum

Intrinsic causes are constipation diarrhea cathartics purgatives and straining at stool

Extrinsic causes embrace all tho e conditions which tend to raise the venous pressure in the portal system Some of these disease entities are heart failure pathologic conditions of the liver such as cirrhosis and neoplasms pregnancy tumors of the uterus and ovaries and a large prostate

Predisposing and exciting causes for the external and intero-external hemorrhoids are the same as for the internal variety

PATHOLOGY

Because there are no valves in the portal system or in the branches of the portal vein the unsupported column of blood exerts a back pressure at its most dependent point Because of this as well as other etiologic factors previously discus ed varicosities may develop in the lower rectal and anal regions and form definite swellings At first hemor rhoids exist as simple uncomplicated swellings or varicosities Later following continuous trauma from stool the mucosa becomes granular or ulcerated and bleeding occurs Constant stool contact trauma of these swellings plus straining at stool loosens them from their attachment to the underlying musculature This in time results in protrusion or prolapse At first the pile retracts spontaneously Constant prolapse stretches and relaxes the sphincter so that walking lifting or even straining finally results in prolapse If the prolapse is not reduced quickly strangulation edema or gangrene may occur

The modern conception of strangulated hemorrhoids has been clari fied by Bacon and Hirshman on the basis of thrombosis of veins caused by trauma and inflammation With inflammation already existing in a prolapsing hemorrhoid failure to reduce it after defecation results in trauma and thrombosis This is aggravated by the contraction of the sphincter on the protruding mass and is further aggravated by walking

lifting straining, etc Because of the already existing thrombosis of some of the veins there is an alteration in the normal blood lymph tissue balance, with resulting congestion stasis perianal edema, and more thrombosis If the condition has not progressed too long the prolapsing mass can be reduced, but usually after 24 hours reduction is impossible and should not be attempted

The old concept of the anal sphincter s strangulating the prolapsing hemorrhoids has been disproved, the author, as well as other proctologists has been able to insert a lubricated finger into the rectum with ease in such cases However we do believe that the strangulation or contraction of the sphincters on the prolapsing hemorrhoid does help to constrict the blood and lymph supply causing stasis in the venous and lymphatic vessels with alteration in the blood lymph tissue balance followed by edema extensive thrombosis and even gangrene

Secondary anemia frequently develops in patients with longstanding hemorrhoids and occasionally exsanguination may occur With thrombotic piles there is an actual rupture of a vein Consequently, blood oozes out in the loose areolar tissue and forms a single clot or several clots

SYMPTOMS

INTERNAL HEMORRHOIDS

These hemorrhoids may remain symptomless for a long time However when symptoms do occur the following are common

Bleeding —The first inkling of his condition that the patient may have is the discovery of blood varying from a small streak on the toilet paper to frank hemorrhage into the toilet bowl Bleeding is usually bright red in color in contrast to the presence of dark blood which indicates bleeding higher up

Pain —Inasmuch as there are no sensory nerve endings in the mucosa above the pectinate line pain is absent An exception to this however is the case of prolapsing hemorrhoids (see below) which cause discomfort while they temporarily invade the sensory nerve supplied anal canal The anal discomfort thus produced disappears when the prolapsing hemorrhoids are reduced to their usual location in the lower rectum

Prolapse —Owing to the fact that internal hemorrhoids are being constantly traumatized by passing fecal masses they tend to be pulled

away from the underlying musculature and stretched so that they finally prolapse outside the anus. During defecation the patient will frequently state that he reduced them manually by pushing them back into the anal canal upon the completion of the bowel movement. These hemorrhoids prolapse on a pedicle and differ from the intero-external variety in this respect (see figs. 57 and 59).

EXTERNAL HEMORRHOIDS

Symptoms.—The varicosed variety are symptomless. The integumentary variety may contribute to pruritus ani but are otherwise symptomless. The thrombotic hemorrhoids are noted for their sudden onset of severe pain associated with a swelling at the anal verge. The swelling varies in size from that of a pea to a walnut. The pain, which is continuous, may be throbbing in nature and is aggravated by straining during defecation, by coughing, or by lifting, in which the abdominal contents are compressed.

INTERO-EXTERNAL HEMORRHOIDS

Symptoms.—This type is associated with findings of internal and external hemorrhoids with and without prolapse. Without prolapse, bleeding may be present but no pain. With prolapse, pain is present following bowel movements until the prolapse is reduced; bleeding may or may not exist. Prolapse causes a soiling of the underclothing, irritation of the perianal skin, and occasionally a complicating simple pruritus ani. A secondary anemia may develop from the constant loss of blood. Occasionally a patient will complain of a reflex lumbago or dull ache over the sacrum.

STRANGULATED HEMORRHOIDS

Symptoms.—Strangulated hemorrhoids usually occur following the patient's neglect to reduce prolapsing hemorrhoids after bowel movements. After 12 to 24 hours of prolapse, an annular ring of edema and thrombosis develops, associated with marked continuous pain and difficulty in sitting and walking. Bleeding and soiling of the underclothing frequently accompany strangulated hemorrhoids. After 24 hours, reduction of the prolapsed, edematous, thrombotic hemorrhoid is usually impossible.

DIAGNOSIS

EXTERNAL HEMORRHOIDS

The integumentary variety of skin tag is seen as a redundant fold of skin at the anal verge It is usually pale in color and firm when grasped between the fingers It consists of skin and connective tissue with some small blood vessels coursing through it The varicosed hemorrhoid appears as a bluish soft varicosity at the anal verge which collapses when pressure is applied The thrombotic pile is a smooth hard bluish mass which varies in size from a small pea to a large grape and is exquisitely tender when palpated

INTERO EXTERNAL HEMORRHOIDS

Intero external hemorrhoids appear as protruding ulcerated mucosa covered swellings continuous with the perianal skin tags If they have prolapsed for a long period of time they can be felt digitally as fibrotic swellings

INTERNAL HEMORRHOIDS

Internal hemorrhoids cannot be palpated in their uncomplicated form They are best diagnosed by direct visualization during a proctoscopic examination They are seen as swellings prolapsing into the lumen of the proctoscope They are covered with mucosa and vary in color from the bluish red of the simple varicosed type to the strawberry red of the granular type

DIFFERENTIAL DIAGNOSIS

All rectal bleeding should be considered as indicative of an underlying malignancy until proven otherwise This statement may seem unusually pessimistic and far fetched However it is only too often that individuals with malignancies are treated for hemorrhoids and one would be wise to err on the side of ultraconservatism in this respect A carcinoma of the rectum can usually be palpated by the examining finger as a fixed cauliflower like growth A protruding pedunculated polyp occasionally simulates hemorrhoids However it is grayish in appearance firm to the touch and can be rolled between the fingers Pedunculated polyps usually originate in the rectum above that area

in which hemorrhoids occur Anal papillae occur at the pectinate line and are pyramidal in shape with a broad base They are pink with a pale tip and do not bleed Occasionally they acquire a pedicle and a ball tip and resemble pedunculated polyps All anorectal pathology should be kept in mind in the diagnosis of hemorrhoids

Treatment

Prophylactic Treatment —For all types of hemorrhoids this consists of avoidance of straining at stool heavy lifting coughing and exces sive sneezing The proper control of constipation is also helpful in preventing hemorrhoids

EXTERNAL HEMORRHOIDS

The skin tag type of hemorrhoid and the external varicose hemorrhoid practically never give any symptoms and no treatment is necessary or indicated The treatment of inflamed skin tags as found in pruritus ani fissure in ano or internal blind fistula is given in the chapters devoted to the above conditions

THROMBOTIC HEMORRHOIDS

Home Treatment —Thrombotic hemorrhoids present varying sizes of anal verge swellings with constant pain If small palliative treatment as follows usually suffices Rest in bed with the continuous application of an ice bag for at least 16 hours or until pain subsides This helps to prevent congestion and more thrombosis After the pain subsides hot sitz baths twice a day to help absorb the hematoma Surfacaine (an anesthetic ointment) applied to the area at least twice a day mineral oil by mouth to facilitate easier bowel movements and avoidance of strain ing phenaphen with or without codeine p c and h s to help relieve discomfort during first week

Office Treatment —This consists of the application of 10 per cent silver nitrate solution followed by an application of a 5% tannic acid in 95% alcohol solution until healed Internal hemorrhoids can be injected during these office visits

Surgical Treatment —Surgically the thrombotic hemorrhoid is in jected above and below with a local anesthetic An oval shaped incision

is made around a hemostat attached to the skin over the thrombus, and the entire clot with the overlying skin is excised (fig 60) Any bleeders present are ligated or dessicated The skin is not sutured

Postoperative Home Treatment—Consists of hot sitz baths every day mineral oil as necessary, Desitin cod liver oil ointment applied internally and externally to the operative wound twice daily and 2 phenaphen caps after meals and at bedtime

INTERNAL HEMORRHOIDS (NONPROLAPSING VARIETY)

Home Treatment—Palliative home treatment for symptomless or

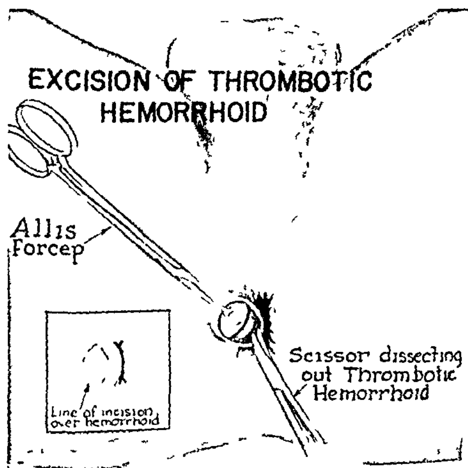


FIG 60 EXCISION OF A THROMBOTIC HEMORRHOID

FIG 60 A local anesthetic is placed under the skin over the thrombus and more local is placed under the thrombus An elliptical incision is then made through the skin (see inset above) An Allis forceps is then attached to the loose elliptical skin and with this used as a retractor the blood clot is dissected free from its subcutaneous attachment below

bleeding internal hemorrhoids consists of the daily use of a hemorrhoidal suppository mineral oil as necessary to control constipation and the temporary avoidance of roughage in the diet to avoid trauma to the already ulcerated mucosa

Office Treatment —The simplest and the best type of office treatment is injection therapy The advantages of this type of treatment are as follows The treatment can be done in the office with no loss of time from work because the patient can go about his business as soon as the treatment is finished No hospital expenses are incurred by the patient and the doctor does not have to purchase complicated and time-consuming electrical apparatus Pain is absent or minimal as injections are made in the non ensory area above the pectinate line No anesthetics are necessary This treatment may be used in the presence of severe organic disease such as tuberculosis and heart disea e It may also be used in the aged

Technic for Injecting Hemorrhoids —No enemas are required The patient is placed in the left or right lateral Sims position A 5 cc Luer Lok a B D long shafted 20 gage hemorrhoidal needle and a Brinkerhoff or Barr Shuford speculum are the instruments required (fig 61) (See chapter on Injection Treatment of Hemorrhoids)

5 *Per Cent Phenol in Olive Oil Technic* —About 1 to 2 cc is injected at the most accessible part of the pile just under the mucosa (not into the center) until the small blood vessels stand out on a blanched mucosa Two or three primary hemorrhoids can be injected at a sitting starting high and injecting a little lower at each visit Treatment can be given every other day or thrice weekly If mucosal prolapse accompanies hemorrhoids 2 cc of 5 per cent phenol in olive oil is deposited between the submucosa and the muscularis Two or four quadrants can be injected at each sitting starting high and injecting a little lower and at opposite quadrants at each successive visit (see chap 15)

In *pregnancy* constipation and straining should be avoided as prophylactic measures If hemorrhage and prolapse develop during pregnancy and interfere with the patient s normal existence hemorrhoids may be treated by injection or removed under local anesthesia Surgical treatment for simple internal nonprolapsing hemorrhoids is not necessary or indicated

Quinine and Urea Hydrochloride Technic —Some men prefer this solution injecting 5 to 15 minims slowly Occasionally patients are sensitive to quinine and develop sensitization reactions The authors

prefer and use almost exclusively, 5% phenol in vegetable oil which has worked well and produced practically no complications in the last 30 years

INTERNAL PROLAPSING HEMORRHOIDS

The most suitable and most satisfactory treatment for prolapsing hemorrhoids is the surgical treatment If the patient is not a good surgical risk or absolutely refuses surgery the injection treatment can be used, though it will give only temporary relief

Anesthetic—The authors prefer to use sodium pentothal intravenously and 1 per cent novocain local analgesia Three minims of adrenalin 1 1000 to each ounce of novocain, helps to constrict the blood vessels and to diminish operative bleeding For preoperative medication gr 1/6 to gr ¼ morphine sulphate and gr 1/150 atropine one hour before surgery is administered

Surgery—The following surgical procedures, except the last one are commonly used (1) open clamp and cautery method, (2) ligature method, (3) suture method, (4) Whitehead operation

The Whitehead method is mentioned only to be condemned because of the frequent occurrence of postoperative stricture, partial or complete incontinence, or extrophy of the mucous membrane After trying many and numerous accepted methods the authors have found the open clamp and cautery method the most satisfactory

It is not the purpose of this book to teach the surgical technique of hemorrhoidectomy but we feel that a few points are worth mentioning

Aside from the plastic type of hemorrhoidectomy, most methods consist of a dissection of the primary internal hemorrhoid and its removal by ligature by suture or by cauterization The particular method of excising these varicosed veins is actually immaterial so long as the dissection is properly performed and sufficient area for drainage of purulent material is allowed Regardless of the method used one should be sure to leave enough skin between each area to allow for epithelialization of the raw areas

Small bleeders are controlled by electrocoagulation To avoid postoperative pain suturing of skin edges should not be performed Suturing may occasionally cause abscesses and fistulae and therefore should not be used An opium (gr 1) and belladonna suppository is inserted to prolong postoperative comfort after the local wears off

Instead of the frequently used rectal whistle (hard rubber tubing with gauze wound around) a rubber cigaret drain (gauze removed) is

inserted into the anorectum, with the balance covering the raw skin areas This is not painful to retain and is removed the following morning with practically no discomfort to the patient It is a tremendous improvement over the whistle and even the vaseline gauze, both of which are excrutiatingly painful to remove A piece of vaseline gauze is now applied over the cigaret drain and this is followed by two pieces of dry gauze Three rolls of gauze (made by rolling three pieces of sponge gauze together) follow next Over the three rolls a 1x8 ab sorbent pad is applied and is held in place by three strips of adhesive Now while the patient is still in the lithotomy position a double tailed T binder is applied and tied very snugly These external dressing rolls produce a ball like pressure pad which acts as a hemostatic and splint, preventing unnecessary postoperative pain and bleeding All dressings are removed the following morning It will be noted that all the pro cedures in this operation have been planned for safety and for a mini mum of operative and postoperative pain

Postoperative Office Treatment—At each visit the Desitin cod liver oil ointment with pile pipe is inserted and moved back and forth from anterior to posterior two times to break up granulations which tend to narrow the lumen This is followed with silver nitrate 10% to all raw surfaces more Desitin and a dressing By breaking up granulations while the wound is young the surgeon obviates the necessity in most cases of doing finger dilatation or stretching

Home Treatment for all Surgically Treated Hemorrhoids—Sitz baths twice daily and after all bowel movements Insertion of Desitin cod liver oil ointment into anal canal and on external operative wounds to accelerate healing and to lubricate the ano rectum facilitating easier less traumatic and less painful bowel movements, mineral oil on retiring in varying and indicated dosage 2 phenaphen and codeine gr ½ cap sules one half hour before b m s and more after if necessary Patients should be kept comfortable at all times A 1x4 cotton gauze lubricated with Desitin ointment is applied to anus after b m s and at bedtime This is kept in place with a Kotex pad and belt A general diet is encouraged to produce normal sized stools which keep the anal canal and rectum dilated

INTERO EXTERNAL HEMORRHOIDS (NON STRANGULATED TYPE)

The injection treatment does not give a satisfactory result and should be used only if organic disease or debility is present or if surgery is absolutely refused by the patient

INTERO EXTERNAL (STRANGULATED TYPE)

Surgical Treatment—In our experience surgery is the indicated treatment and should be performed at once We see no reason for treating the patient for two to three weeks and then having to perform surgery anyway requiring another two to three weeks for convalescence Immediate surgery accomplishes the same thing, and saves the patient time, pain, and much inconvenience The tissues in strangulation are usually friable and the suture method is the safest to use in these cases

Home Treatment—In poor risk, debilitated patients or those awaiting surgery, the following treatment gives considerable relief An *ice bag* is applied to the perianal area continuously Compresses of lead and opium wash of equal parts or powdered alum and lead subacetate 1 ounce each to 2 quarts of water may be used with the ice bag mineral oil ½ ounce twice daily, phenaphen capsules with or without codeine p c and h s until pain subsides

Chapter 15 INJECTION TREATMENT OF HEMORRHOIDS

SELECTION OF CASES

THIRTY years experience with the injection treatment of hemorrhoids in several clinics and private practice has taught the writers what to do as well as what not to do and which hemorrhoids to inject, as well as those which do not respond satisfactorily to treatment *The type of hemorrhoid that responds most satisfactorily to the injection method is the non prolapsing internal hemorrhoid* The next most satisfactory is the internal prolapsing type which is self reducing and without fibrosis Hemorrhoids which prolapsed for years and have become fibrotic *do not* respond well to the injection method The strangulated prolapsing pile, the skin tag (integumentary hemorrhoid) and the thrombotic pile should *certainly not* be injected The injection of the intero-external hemorrhoid with its associated skin tag will *not* give good results If for various medical reasons a patient is not a good surgical risk or refuses surgery the injection treatment can be used though it will give only temporary and palliative relief

If cases are properly selected proper solutions are used and ordinary antiseptic precautions are taken good results can be expected To avoid recurrences patients should be seen yearly and newly developing hemorrhoids injected before they become large and troublesome

INSTRUMENTS

The only instruments necessary for the injection treatment are a Brinkerhoff Speculum 6 inches long a Brinkerhoff Speculum 4 inches long a Barr Shuford or Hinkle James Speculum a 5 cc Luer Lok Syringe a B D hemorrhoidal injection needle and a spotlight (fig 61) Other speculae can be used but for the best exposure the authors have found the above two the most desirable The advantage of the Brinkerhoff is the reflecting surface which inclines inward reflecting a splendid light on the tissue to be treated Another advantage is the ease with which the

Brinkerhoff can be introduced The 6 inch speculum is used mainly to start the injection of prolapsed mucosa high in the canal It also has a valuable place in the treatment of obese patients with large buttocks The 4 inch speculum is more commonly used than the 6 inch speculum The Barr Shuford is the most commonly used of the two types of speculae, since one can treat several hemorrhoids without removing the speculum

STRENGTH AND PURPOSE OF SOLUTIONS USED

The purpose of introducing an irritating solution into a hemorrhoid is to excite a mild chemical inflammation sufficient to produce obliteration of the varicose veins which constitute a hemorrhoid In the treatment of prolapse a similar irritation is set up between the submucosa and the muscularis, producing a fibrinous exudate which results in adhesion of the adjoining parts The solution, therefore, must be strong enough to excite this mild degree of sterile chemical inflammation and

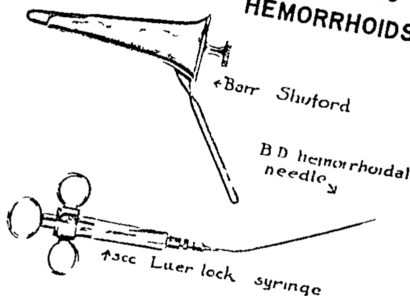


FIG 61 INSTRUMENTS FOR INJECTING HEMORRHOIDS

yet not be so strong as to induce localized necrosis and slough In the past the custom was to use strong solutions and produce chemical necrosis and slough in order to obtain a good result Necrosis, sloughing and death occurred too often to make the method safe The sloughing method has been abandoned and weaker solutions have taken its place These weaker solutions may require more time and treatment but they are safe and will accomplish what they are designed for Numerous formulas have been tried and advocated, but the two most popular and most dependable are 5% quinine urea hydrochloride solution and 5% to 8% phenol in vegetable oil The solution used by the writers is 5% phenol in Wesson oil Almond oil olive oil cottonseed oil and Mazola oil can also be used

PREPARATION OF INJECTION SOLUTION

5% PHENOL IN WESSON OIL

Step #1—Stock solution (50% phenol in Wesson oil) is made as follows Melt in a hot water bath one pound of phenol crystals Add an equal amount of pure Wesson oil by volume Add to the above 20 gr of menthol to each ounce of the 50 50 solution

Step #2—Take stock solution (50 50) 30 00 cc Add pure Wesson oil 270 00 cc This makes up 300 cc of a 5% solution At times the 8% to 10% strengths of the above are used especially if there is extensive hemorrhoidal engorgement and distension also when bleeding con tinues after the use of a 5% solution These stronger solutions are used only occasionally

Because of the arrangement and location of the branches of the superior hemorrhoidal vein internal hemorrhoids are usually found at definite positions in the rectum These positions are the right anterior right posterior and left lateral quadrants As many as five secondary hemorrhoids may develop between the three primary hemorrhoids A knowledge of this anatomy will aid in the proper selection of hemor rhoids to be injected

TECHNIC OF INJECTION

The patient is placed in any position preferred by the operator such as lithotomy Sims knee-chest knee elbow right or left lateral The right or left lateral, a modified Sims is the most comfortable and least embarrassing to the patient and at the same time one which affords

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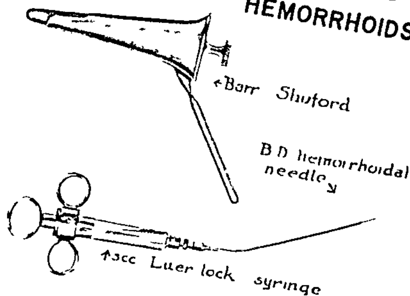


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TECHNIC OF INJECTION

The patient is placed in any position preferred by the operator such as lithotomy Sims knee chest knee elbow, right or left lateral The right or left lateral a modified Sims is the most comfortable and least embarrassing to the patient, and at the same time one which affords

perfect access to the parts to be treated When he attains the preferred position the patient is instructed to draw both knees up toward his chest, with his exposed shoulder turned slightly away from the operator This further improves the accessibility to the parts to be treated If a nurse is not present the patient can assist the doctor by raising one cheek of the buttocks One towel is placed under the patient and another is arranged to cover the buttocks and perineum With the light in position, the Barr Shuford speculum is well lubricated and inserted into the anorectum The obturator is withdrawn, bringing the hemorrhoid into view The speculum is supported with one hand and the injection is made with the other

The hemorrhoid selected for treatment may or may not be swabbed with a solution of equal parts of iodine and alcohol Over a period of 28 years the writers have tried both ways and their conclusions are as follows The rectum has an immunity for its own bacteria and is capable of protecting its tissues against bacterial invasion as it does during and after surgery of the rectum Second the 5% phenol destroys any bacteria that may be passed into the hemorrhoid during injection The less preparation for this treatment the less the patient is disturbed The idea of cleansing cathartics or enemas prior to the treatment is grossly erroneous since both stir up all manner of infective material in the colon putting it in an aqueous suspension so that it may be easily conveyed to the minute break in the mucosa One should first select the hemorrhoid farthest away from the anal verge The best site for injection is the crest of the pile (fig 62) Some texts advise that the needle be passed well into the pile mass which is incorrect Do not penetrate the pile mass at all Instead pass the needle just beneath the mucous membrane at its crest When the injection is high the solution is expelled slowly until the pile appears distended and the blood vessels stand out prominently on a blanched surface (fig 63) The needle is held in place for a moment or two and then slowly removed One to three cubic centimeters is injected into each hemorrhoid A few drops more or less matters little experience will soon teach one when to stop A whitened change in color at the site of injection means that the needle has not been inserted beneath the mucous membrane (fig 64) Remove the needle and select another area for injection

If one happens to inject more of the solution than will be held by the tissue some oozes out and no harm will be done When injected under

the mucosa, the solution penetrates the whole hemorrhoidal mass with the resulting contraction and restored tonicity of the rectal wall Usually, three hemorrhoids are injected at one time Frequently each injection of the primary hemorrhoids helps to shrink the smaller and adjoining hemorrhoids as well

It is advisable to inject the bleeding hemorrhoids as early as possible, since patients desire to be relieved of their symptoms The injections are made from one to three times a week depending on reaction and the patient s general condition

TECHNIC FOR PROLAPSE

A turgescent hemorrhoid usually involves the mucosal and sub mucousal layers in many cases separating itself from the muscular

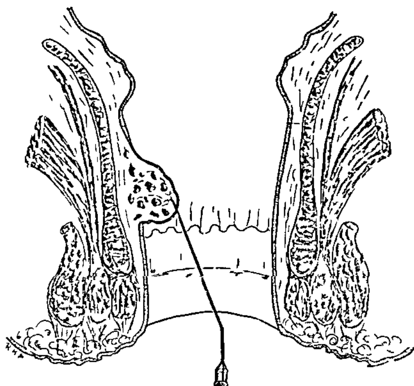


FIG 62 INJECTION TREATMENT OF HEMORRHOIDS

About 2 cc of 5% phenol in olive oil is injected below the muco a Do not inject into center of hemorrhoid.

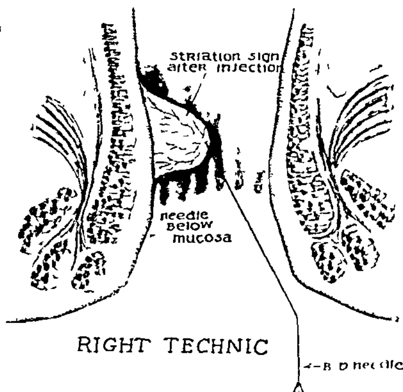


FIG 63 INJECTION TREATMENT OF HEMORRHOIDS (RIGHT TECHNIC)
A B D hemorrhoidal needle a 5 cc Luer Lok syringe and 5% phenol in oil are used for injecting hemorrhoid The injection is made at the *highest visible* point in the hemorrhoid just below the muco a and sufficient solution is injected until white lines appear on a blanched hemorrhoidal urface This is known as the *striation sign* and is one s guide as to the amount of solution to be injected Three hemorrhoids are usually injected at one sitting this can be repeated three times weekly

wall, carrying downward and outward, the venous plexus with a resulting hemorrhoidal and adjoining mucosal prolapse

The injection method for prolapse is concerned only with the above described condition Any other form involving the entire rectum such as "procidentia recti," is another problem and will not be considered in this chapter Also one is to keep in mind that this treatment is given only to poor surgical risk cases and those who absolutely refuse surgery with the reminder that relief will be only temporary

The technic for this condition is a little different The injections are made along with the injection of the hemorrhoids Begin the treatment as high up as possible in the loosened rectal mucosa The same syringe and needle is used The special 6 inch Brinkerhoff speculum enables the operator to reach the redundant mucosa a good distance above the

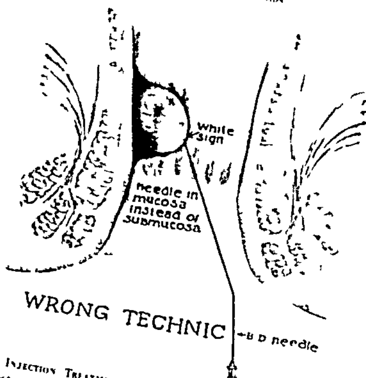


FIG. 61 INJECTION TREATMENT OF HEMORRHOIDS (WRONG TECHNIC)
A whitened spot at the site of injection indicates that the needle is in the mucosa instead of through it. If this occurs stop withdraw the needle and select another site for injection

anus The same 5% phenol in Wesson oil solution is injected liberally without fear of slough but the solution must go in without any undue application of pressure Sometimes 6% solutions are used for this condition depending upon results obtained with the 5% solution

In the prolapse technic the solution is not deposited just under the mucosa but instead the needle penetrates through the mucosa and submucosa and the solution is expelled between it and the muscle wall (fig 65) Repeat the same process in the opposite quadrant Wait several days to a week and inject the remaining two opposite quadrants In several more days repeat the process a step lower This alternating of sites is continued down to the area just above the pectinate line The solution when injected usually diffuses making it unnecessary to approach too closely to the anal sphincters

The phenol solution thus injected under the loose mucosa soon causes a nonpainful mild irritation with the production of a fibrinous exudate which results in adhesion of the adjoining parts after the hyperemia has

subsided by resolution There may be some induration which later disappears leaving contraction and adhesion of loose tissue and a restoration of tonicity of the rectal wall

Patients are instructed to avoid bowel movements for several hours following treatment and to prevent bearing down at any time This permits ample time for the solution to cause adhesion of the adjacent parts Good results will be obtained if the above technic is carried out properly

HISTOPATHOLOGY BEFORE AND AFTER TREATMENT

A hemorrhoid is a plexus of many small dilated valveless veins surrounded by indurated connective tissue and covered by mucous membrane Injecting an irritant substance around such a plexus will excite productive inflammation in the adventitia of the vein and in the tissue immediately surrounding it This results in a gradual phlebitis and

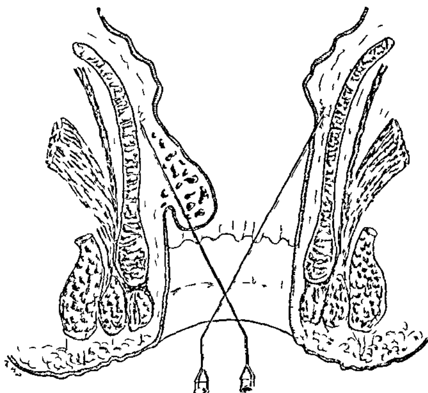


FIG 65 INJECTION TREATMENT FOR PROLAPSING HEMORRHOIDS

In poor surgical risk patients temporary relief can be obtained by injecting about 2 cc of 5 per cent phenol in oil between the mucosa and the muscularis in opposite quadrants. This should be repeated at various levels until prolapse is relieved

VEIN

DILATED HEMORRHOIDAL VEINS BEFORE INJECTION TREATMENT



Fig. 6((top) Stained Section of a Hemorrhoid—L.P.
Photomicrograph of distended vein seen in hemorrhoidal section d ti ue

Fig. 67 (bottom) Section of Injected Hemorrhoid—1 Week Later
One week after injection of hemorrhoid note fibrous connective infiltration around distended veins with beginning contraction

periphlebitis The progressive fibrous connective tissue changes (figs 66, 67, 68 69) that follow induce a steady diminution of the caliber of the vein until complete obliteration results The venules are no longer distended with blood and, as organization proceeds the hemorrhoid is converted into a fibrous mass of tissue Thus, the hemorrhoid plexus of small dilated venules distended with blood becomes converted into a solid nonvascular mass and obliteration is accomplished

CLINICAL CHANGES

Clinically, these various changes can be noted Within a few hours following an injection an inflammatory reaction is evidenced by swelling and redness Little, if any heat or pain is felt because the inflammation is mild, the solution is anesthetic, and the injection is made above the sensory nerve area In less than 24 hours these changes subside, swelling diminishes, and in a few days the hemorrhoid begins to show evidence of fibrous tissue formation On palpation a cordlike or round sclerotic mass is felt directly under the mucous membrane Gradually, in about six to eight weeks, the sclerotic mass resolves with a restoration of softness and normal tonicity of the rectal wall Hemorrhoids that have been bleeding profusely frequently stop after the first two or three injections

POST INJECTION REACTIONS

If the proper technic has been used all that is experienced is a short duration of pain of no great severity and a dull ache which lasts several hours after the injections This can easily be relieved by the administration of two aspirin compound tablets immediately after each treatment and every three to four hours thereafter as long as necessary A hot sitz bath is helpful The injection of fluid with distension of the mucosa may at times cause the patient to be conscious of a slight sense of fullness in the rectum This is only transient does not interfere with bowel action and is complained of only occasionally

DON'TS FOR THE INJECTION TREATMENT

Some of the things not to do should be strictly observed Don t inject hemorrhoids in the presence of anorectal infection such as cryptitis fissure in ano fistula abscess or ulcerative proctitis The proper and safe thing to do is to clear up all infection and painful lesions before injections are started Don t inject below the pectinate line Don t inject into the center of the pile, as solution may enter the circulation Don t





Fig 68 (top) Section of Injected Hemorrhoid—3 Weeks Later

Three weeks after injection of hemorrhoid note increasing amount of fibrous connective tissue and continued contraction of varicose veins

Fig 69 (bottom) Section of Injected Hemorrhoid—6 Weeks Later

Six weeks after injection of hemorrhoid note marked fibrous connective tissue infiltration and marked diminution of varicosed vessels.

inject beyond visibility, as too much solution may be injected with resulting slough and hemorrhage If a white spot appears, stop—the solution is being injected *into* the mucosa instead of below the mucosa It is dangerous to force solution into any hemorrhoid it must go in with ease Solutions injected under pressure may produce slough and serious hemorrhage Don t inject any hemorrhoids covered by skin Don't promise your patient a permanent result because hemorrhoids tend to recur regardless of the method used, surgical or injection

Injection Treatment in Pregnancy

In pregnancy, constipation and straining should be avoided as prophylactic measures If bleeding or prolapse develop during pregnancy and interfere with the patient s normal existence hemorrhoids may be treated by the injection method We have used the injection treatment during pregnancy for twenty six years with only beneficial results

Chapter 16 PROLAPSE AND PROCIDENTIA

Prolapse of the anorectum is a pathologic descent with or without protrusion of one or more layers of the terminal end of the bowel through the anus

Types

FIRST DEGREE PROLAPSE (fig 70)

This type consists of a prolapse of the mucous membrane of the anorectum such as is seen in prolapsing internal hemorrhoids

SECOND DEGREE PROLAPSE OR PROCIDENTIA RECTI (fig 71)

This entity is also referred to as procidentia recti and consists of a prolapse of all the layers of the rectum

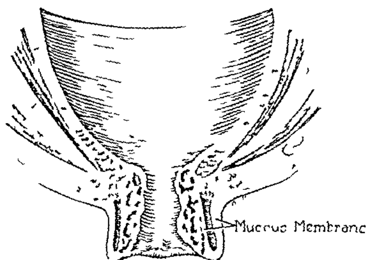


Fig 70 First Degree Prolapse

Note that the prolapsing tissue is all mucous membrane Prolapsing internal hemorrhoids are an example of first degree prolapse

THIRD DEGREE PROLAPSE (fig 72)

This is an intussusception of the rectum sigmoid or both

ETIOLOGY

IN CHILDREN

Predisposing Factors—In children these are of an anatomical nature Among the factors that may be considered in children are weak fixation of the rectum absence of the sacral curve, a high position of the bladder and uterus at birth, absorption of fat in the ischiorectal fossa following wasting diseases, malnutrition and weakness of the sphincter muscle

In infants 2 to 5 years of age, second degree prolapse is fairly common and conservative management is almost always successful (see injection treatment)

Exciting Factors—One of the most important factors in this category is excessive straining at stools associated with diarrhea Other exciting causes are constipation, prolonged straining at stools, thread worms pedunculated polyps, and whooping cough

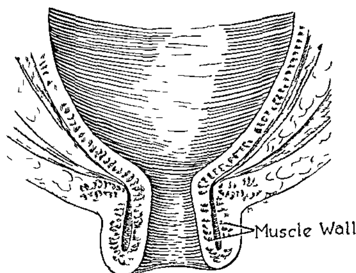
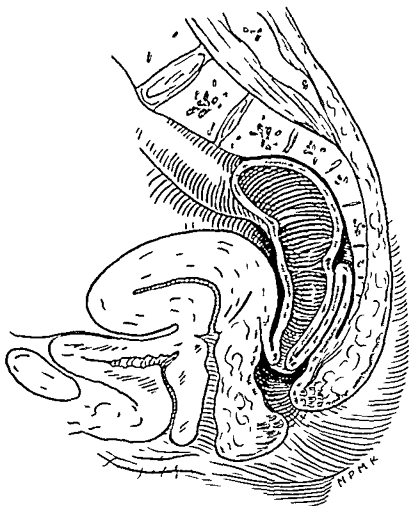


FIG 71 SECOND DEGREE PROLAPSE

In second degree prolapse the entire rectal wall prolapses with all of its layers mucous membrane submucosa and muscles of the rectal wall Procidentia recti is an example of second degree prolapse



THIRD DEGREE PROLAPSE
SIGMOIDAL PROCIDENTIA

Fig 72 Third Degree Prolapse

In this condition the sigmoid prolapses down into the rectum, which is visible on proctoscopic and sigmoidoscopic examination

IN ADULTS

Predisposing Factors —Constipation enteroptosis rectal pedunculated polyp carcinoma with stenosis hemorrhoids stones in the bladder weakness of the sphincter muscle injury to the sphincter during par

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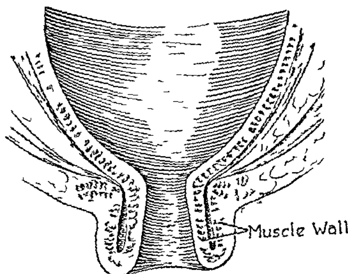


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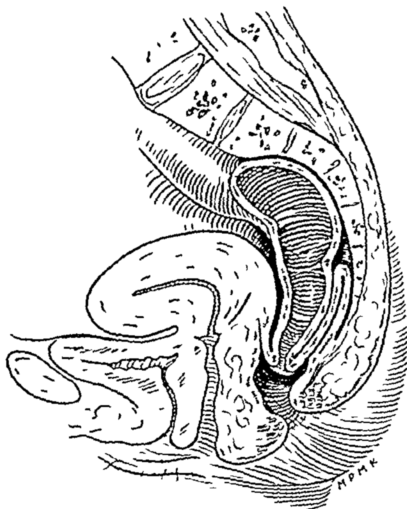


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IN ADULTS

Predisposing Factors—Constipation enteroptosis rectal pedunculated polyp carcinoma with stenosis, hemorrhoids stones in the bladder weakness of the sphincter muscle injury to the sphincter during par

turition, stricture of the urethra, enlarged prostate gland, old age elongation and laxness of the mesentery of the sigmoid an abnormally long sigmoid, and a wide rectosigmoid angle

Exciting Factors—Among the more important exciting factors may be mentioned diarrhea, straining, sneezing coughing foreign bodies in the rectum, hemorrhoids, and hard constipated stools

PATHOGENESIS

Normally, during defecation a narrow ring of mucosa prolapses through the anus to return spontaneously upon the completion of the act In mucosal prolapse a greater amount of mucosa descends with or without spontaneous return to its normal position In second degree prolapse or procidentia recti all of the layers of the rectal wall prolapse out of the anal canal In third degree prolapse or intussusception or concealed prolapse, all of the layers of the upper rectum and rectosigmoid prolapse into the rectal ampulla during straining or defecation

SYMPTOMS

The symptoms are divided into the following types

First Degree Prolapse—This type may return by itself or it may have to be reduced digitally by the patient Bleeding during defecation is common because of mucosal prolapse and ulceration Old protrusions may become epithelialized (metaplasia) pale and leathery owing to constant external exposure, or strangulation may occur with edema swelling thrombosis, and gangrene In recent prolapse the tissue is pink and moist when long standing it is deep red and edematous, if tightly compressed purple and if strangulation is complete it quickly becomes black

Second Degree Prolapse (Procidentia Recti)—This is marked by the presence of a protruding mass from the anus The sphincters become relaxed with resulting fecal soiling The prolapsed mass may become incarcerated or strangulated, with the same symptom complex described under first degree prolapse

Third Degree Prolapse—There is a feeling of unsatisfactory or incomplete emptying at defecation which results in more straining There may be a heavy dragging sensation in the lumbosacral region because of the mesenteric tug with referred pains to thighs and perineum Asso-

ciated symptoms are constipation flatulence indigestion and irritable colon Sometimes bloody mucus is noted it is due to ulceration at the apex of the prolapsed bowel Strangulation or obstruction rarely occurs

DIAGNOSIS

First Degree Prolapse

The prolapse begins at the anal margin and the mucous membrane can be seen to be continuous with the surrounding skin There is no sulcus but there are radial striations

Second Degree Prolapse

The prolapse begins at some point in the rectum above the pectinate line and extrudes through the nonaffected portion below producing a distinct sulcus between the prolapsed rectum and the margin of the anus plus circular striations (fig 73)

Third Degree Prolapse

This type does not protrude and is felt with the examining finger while the patient is straining The diagnosis is made with the sigmoidoscope ruling out villous tumor a pedunculated polyp and carcinoma of the rectum The bowel prolapses into the tube while the patient strains and recedes on relaxation

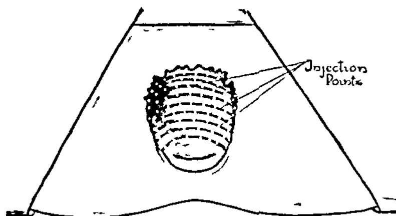


FIG 73 INJECTION TREATMENT FOR PROCIDENTIA RECTI

Showing points in prolapsed rectum to be injected with 5 per cent quinine and urea hydrochloride solution

TREATMENT

First Degree Prolapse

It is not possible within the province of this book to describe the various methods of treatment, therefore, we shall briefly describe several of the most successful techniques used by the writers

INJECTION METHOD—*In this condition the non operative technique* would consist of the injection of 5% Phenol in oil or quinine and urea hydrochloride between the submucous and muscular layers at several levels

Strangulated First Degree Prolapse

An ice bag is applied to the protrusion, or compresses soaked in 1 1000 adrenalin solution and applied with firm pressure, or com presses of lead subacetate and alum (one ounce of each) to a quart of water *Prolapse should be reduced in the first 24 hours, after 24* hours this is usually impossible

SURGICAL TREATMENT—Since prolapsing hemorrhoids are almost al ways associated with first degree prolapse the surgical treatment would be hemorrhoidectomy

Second Degree Prolapse or Procidentia Recti

General hygienic measures should consist of removing as much strain as possible by having the patient defecate while lying on his back or side *An alum enema (1 teaspoon to each pint of water) should be given* after each bowel movement following reduction of the prolapse Then a ball of cotton is applied firmly against the anal opening *and the* buttocks are strapped together with adhesive Mineral oil should be given orally and mineral oil or olive oil rectal instillations given nightly

Several non operative and operative techniques for the treatment of second degree prolapse will now be described

NON OPERATIVE METHODS FOR SECOND DEGREE PROLAPSE

Quinine and Urea Hydrochloride Injection Method—Using a tuber culin hypodermic syringe and needle, about 2 minims of 5 per cent quinine and urea hydrochloride are injected *into the submucosa* of the prolapsed bowel at numerous points (fig 73) When this has been completed the prolapse is reduced and the rectum is packed with iodo form gauze The patient is kept comfortable with morphine sulfate—dosage depending upon the age of the patient—sedatives *and oral*

analgesics The following day the packing is removed and each day thereafter an alum enema should be administered after each bowel movement

The same injection can also be given extra rectally keeping one finger in the rectum and depositing the sclerosing agent in the submucosa at 4 points anterior posterior and both lateral quadrants and at different levels

OPERATIVE METHODS FOR SECOND DEGREE PROLAPSE

Suture recto pexy —Recommended primarily for children and is quite simple to perform

1 A special needle with an eye at the tip is introduced through the skin at the lower border of the sacrum at its lateral margin and the tip is pushed through into the rectum under guidance of the left index finger

2 When the tip of the needle protrudes through the anus it is threaded with black silk and then withdrawn

3 The same procedure as above is performed on the other side of the sacrum the same silk thread being threaded through the eye of the needle and withdrawn

4 The ends of the silk are tied over the sacrum and allowed to remain for 2 weeks and are then cut and removed (see fig 74) This operation is performed under general anesthesia and is uniformly successful and devoid of complications

Linear Cauterization

The Paqualin cautery is another technique quite often performed and invariably successful in children In this procedure the prolapsed mucosa is put on stretch and the mucosa is cauterized 4 or 5 times in a radial fashion after which the prolapse is reduced *Postoperative care* consists of instillations of Desitin cod liver oil suppositories soft diet and intestinal antiseptics such as sulfasuxidine Terramycin etc The principle of this procedure is the formation of scar tissue between submucosa mucosa and muscularis

Excision and Suture Method —(Bacon) Consists of

1 exteriorizing the rectal *prolapse*

2 making an anterior and posterior mucosal incision the length of the prolapse and

3 separating the mucosa from the submucosa

4 A suture is then placed connecting the two ends of the incision thus shortening the rectum but increasing the circumference

5 The excess mucosa is trimmed off and the edges sutured together (See fig 75)

Many other formidable procedures have been described for the more serious cases of second and third degree prolapse many of which require abdominal, vaginal, or sacral approaches They depend mainly upon specific findings in each case and therefore the specific operative procedure should be based upon individual findings

In the experience of the writer alum enemas corrective habits elimination of diarrhea, straining, etc, with the addition of the injection treatment and an occasional simple surgical procedure, have relieved the majority of cases

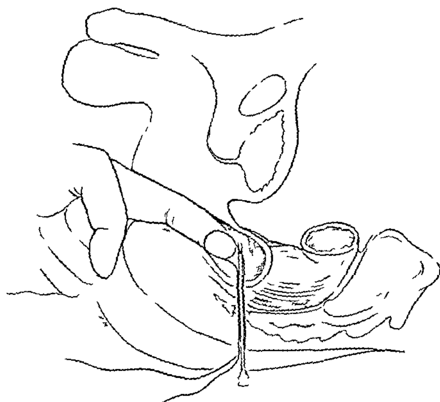


FIG 74 SUTURE RECTOPEXY

Good for prolapse in children A special needle is required with an eye near the tip The needle is passed through the skin and into the rectum at the lateral margin of the lower border of the sacrum The finger disengages the heavy silk thread which is drawn out of the anus The procedure is repeated on the opposite side of the sacrum The anal ends of both sutures are tied together and the outer ends are tied over the sacrum General anesthesia is required Sutures should be left in place for two weeks *(After Kirschner & Cantor)*

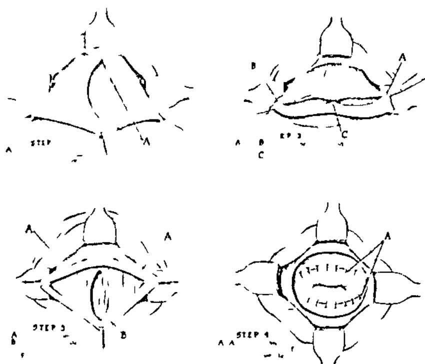


Fig 75 Operation for Rectal Prolapse (After Bacon)

Step 1 The anal margin is retracted and the prolapse is held taut with Allis forceps A longitudinal incision is then made in the long axis of the bowel and the mucosa is separated by blunt dissection

Step 2. The lateral edges of the wound are drawn apart to assume a transverse position Central fixation suture is introduced and excess tissue is excised

Step 3 The edges of the mucosa are sewed together The anterior half of the operation is completed

Step 4 A similar procedure is carried out on the posterior portion of the prolapse

OTHER OPERATIVE METHODS FOR SECOND AND THIRD DEGREE PROLAPSE

The following procedures are mentioned for use in the intractable recurrent cases but are only rarely necessary

Shortening lateral ligaments of rectum (Lynch)
Intersigmoidal fossa obliteration (Hirshman)
Cul-de sac obliteration (Moschcowitz)
Fixation of sigmoid to psoas muscle (Martin)
Mobilization of rectum and fixation of recto sigmoid (Pemberton)
Fascial repairs (Mayo) (Orr)
Procto Sigmoidectomy (Babcock)

Chapter 17 ANAL STENOSIS

Anal stenosis is a congenital or acquired narrowing of the anal opening or the anal canal This condition is different from pectenosis, which is an anal tightness rather than a stenosis

Classification

Of all the various types of anal stenosis the postoperative is the most common The other types listed below, in comparison, occur only occasionally

Acquired

1 *Postoperative (most common type) This condition frequently* follows the Whitehead operation or in hemorrhoidal operations where too much anal skin is removed

2 *Excision of condylomas*

3 *Malignant* Anal stenosis associated with squamous cell carcinoma

4 *Lymphopathia Venereum* Anorectal stricture

5 *Traumatic Injuries or burns with destruction of excessive anal* verge skin and anal epithelium, such as falls impalement, bullet wounds, knife wounds heat burns, chemical burns

Congenital

See the chapter on congenital malformations of the rectum and anus

Postoperative Anal Stenosis

Pathology —The excessive amount of skin and anal epithelium removed at operation results in a fibrous connective tissue replacement and stenosis

Symptoms —The most prominent symptoms are those of marked straining at stool with pain both before and after the bowel movement *The duration of the pain is from several minutes* to an hour The fear of a bowel movement results in constipation and intestinal stasis The patient may state that the stools are pencil like or ribbon like and can *only be made to move with the aid* of strong saline cathartics

Diagnosis.—The diagnosis is based on the history of surgery, on the above symptoms and on the proctologic finding of a bandlike narrowing of the anal canal and opening which may or may not admit the examining finger

Treatment

Prophylactic.—All due precautions must be taken at the time of surgery to avoid removal of too much anal skin and anal canal membrane The Whitehead operation is to be condemned Postoperative ointment tip dilatation of the anal canal every other day until healing is complete This is done with the patient lying in the Sims position The ointment tip (pile pipe) is placed in the anal canal to the hilt and is moved from posterior to anterior using firm pressure breaking up any existing adhering granulations In most cases this procedure makes finger dilatation unnecessary

Surgical Treatment.—An incision posteriorly through the entire anal canal followed by divulsion will relieve most of them The incision should be extended down through the usually existing pecten band and the sphincter muscle if it is involved in the scar tissue

Postoperative treatment consists of digital dilatation of the anal canal and should be continued until the anus is completely healed Desitin cod liver oil ointment should be inserted twice daily to facilitate an easier and less painful b m and to accelerate healing

MALIGNANT ANAL STENOSIS

This is the least frequent location for lower bowel malignancies Cases of this type may develop incontinence or stenosis

Etiology.—Squamous cell carcinoma basal cell carcinoma and columnar cell adenoma malignum

Pathology.—See chapter 30

Symptoms.—The patient complains of constant pain and discharge

Diagnosis.—There is a history of constant anal pain and swelling with the finding of an indurated lesion with an ulcerated center firmly fixed to the underlying tissue Biopsy confirms the diagnosis

Treatment.—Since a squamous cell malignancy respond to radiation early anal carcinoma responds satisfactorily to surgical excision followed by radium If the lesion has become very extensive and has invaded into

the rectum proper, then an abdomino perineal resection, with a dissection of the inguinal glands is performed

ANORECTAL STRICTURE

This lymphogranuloma venereum infection causes partial stenosis of the anorectum rather than anal stenosis only For details of this condition see chapter 26

TRAUMATIC

Etiology —Falls, impalements, knife and bullet wounds chemical and heat burns

Treatment —Incision posteriorly followed by divulsion Postoperative digital lubrication until complete healing occurs

Prognosis —This is entirely dependent upon the extent of the injury and the rapidity with which treatment is instituted

Chapter 18 ANAL INCONTINENCE

ANAL INCONTINENCE is a partial or total loss of control of the fecal evacuations

Etiology

Anorectal Pathology —Prolapsing hemorrhoids and procidentia recti stretch the sphincter muscles and are responsible for slight incontinence Carcinoma of the anal canal seems to lessen the normal sphincteric tone by interfering with the innervation

Injury to the Anal Canal —This may consist of parturition injuries to the sphincter impalement injuries and sodomy

Operative Injury to the Sphincter —This may follow fistula operation Whitehead operations for hemorrhoids or forceful dilatation or divulsion of sphincters in the aged

Nerve Lesions —Cord anus (tabes) tumors of the cord and cord injuries may cause incontinence

Fecal Impaction —A condition frequently mistaken for incontinence by the patient is a postoperative fecal impaction with accompanying liquefaction of stool and continuous leakage and soiling of dressings and underclothing

Following Anorectal Surgery —In some patients difficulty in keeping the anus completely contracted and closed causes partial incontinence and soiling

Following the Use of Anesthetic Oil or Efocaine —Following the use of anesthetic oil or Efocaine during surgery results in partial incontinence for several weeks Occasionally a slough will occur with these anesthetic solutions resulting in incontinence

Symptoms

The symptoms vary from partial incontinence as in prolapsing hemorrhoids to a complete incontinence as in fistula operations after the anorectal ring is incised

DIAGNOSIS

The diagnosis is based upon a history of previous hemorrhoid or fistula operations, a back injury syphilis, prolapsing hemorrhoids, second degree prolapse, or procidentia Inspection reveals a patulous or gaping anal opening Digital examination reveals the same

TREATMENT

The treatment is dependent upon the cause and whether or not there is complete destruction of the sphincter—evidence of incurable nerve lesions or carcinoma

Fistulectomy is the surgical procedure which most frequently gives rise to incontinence and is usually due to incision of the entire anal ring, or retention of packing within the wound for too long a period of time postoperatively

Palliative Measures—These consist of an early excision of prolapsing piles and the injection treatment for procidentia recti Antiluetic treatment is of no value in cord anus

Surgical Treatment—Surgical treatment for incontinence has not been satisfactory because of the great difficulty in keeping the suture line from becoming infected The following methods have been used suturing the cut ends of the sphincter, suturing the posterior triangle for patulous anus Wredin Stone method of reconstructing a voluntary sphincter by passing fascia lata under the perianal skin and attaching them to the gluteus maximus muscle Thiersch operation, excision and radium for carcinoma of the anal verge and excision of the tumor of the cord

Inasmuch as the Wredin Stone operation seems to hold out the most hope, we herewith present its technic This operation depends upon the utilization of the gluteus maximus muscles which are under the control of the will

Technic—An attempt is made to sterilize the intestinal tract by the use of sulfasuxidine We must try to obtain the greatest degree of asepsis Twenty to thirty tablets of sulfasuxidine a day, depending upon the size of the patient for five days is the amount ordinarily used Aureomycin 250 mg 4 times daily for 3 days or Neomycin Gm 1 each hour for 4 hours starting at 9 a m, then 1 Gm every 4 hours until

midnight may be used for the preoperative sterilization of the bowel Sulfasuxidine should be continued postoperatively The high lithotomy position is used (exaggerated) Four incisions are made Two are symmetrically placed on each side along a line from the coccyx to the ischium (see fig 76) Each is 2 cm long and through them the gluteus is exposed A bundle of fibers of the gluteus muscle 2 cm thick is separated and utilized so that it forms a band of muscle about which loops of fascia are later passed and tied The other two incisions are short deep stab wounds in the anterior and posterior raphae close to the anus These four wounds are then connected subcutaneously with each other by forcing a closed hemostat through the subcutaneous tissues from one wound to another Through the tunnels thus formed are passed

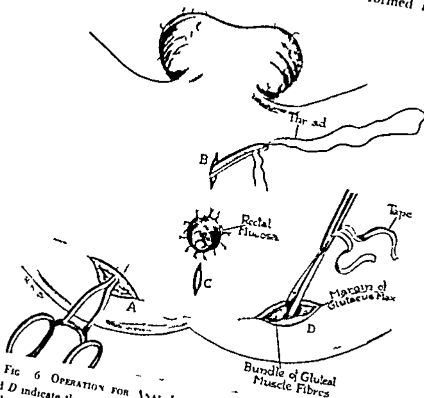


Fig 76 Operation for Anal Incontinence (Wreden Stone Technic)
A and *D* indicate the incision to expose the margins of the gluteus muscle A bundle of muscle fibers from the edge of the gluteus is shown drawn up with a loop of tape in incision *D* *B* and *C* indicate incisions to permit subcutaneous passage of fascia strips about the anal canal (After Stone)

two strong lines of heavy black silk which are tied to strips of fascia (either Koontz fascia or fascia lata), obtained from the patient Each thread starts from one of the lateral incisions and is made to encircle the anus subcutaneously but in opposite directions, each forming a separate loop The strips of fascia are pulled through these channel The two corresponding ends of each strip which pass above and below the gluteal muscle fibers are pulled taut, so as to close the anus, and are tied together about the muscle It is advisable to close the anal outlet snugly The process is repeated on the other side (figs 76 77 78)

The wounds are closed with skin sutures After healing occurs the patient is instructed to contract the buttocks 50 times a day for a number of months to develop the proper voluntary control Fascia lata may

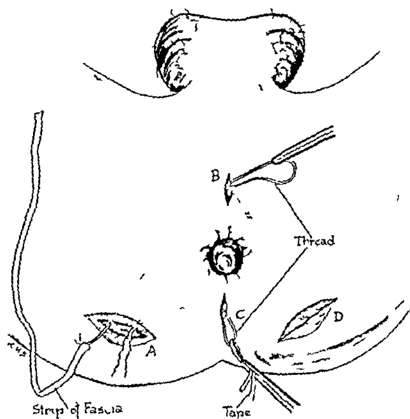


FIG 77 OPERATION FOR ANAL INCONTINENCE (Wreden Stone Technic) Subcutaneous di ction completed for one side with guide thread in place running from *A* to *B* to *C* and back to *A* Loop of redundant thread are left projecting from inci ion *B* and *C* to facilitate *pulling through* of fascia hown tied to end of guide thread (After Stone)

be obtained by stripping the fascia lata of the thigh with the proper instruments or by utilizing animal fascia lata which are put up in tubes by most manufacturers of catgut

Thiersch Operation for Anal Incontinence

This operation is beneficial for rectal prolapse in elderly patients The patient is placed in the lithotomy position and local infiltration of the perianal area is administered A one fourth inch incision is made anterior and posterior about three fourths of an inch away from the anal verge A large-caliber needle is passed deep into the subcutaneous tissue from the posterior to the anterior incisions Soft malleable silver wire #20 is bent into a U shape and passed into and through both needles from the anterior end until they protrude through the posterior portions

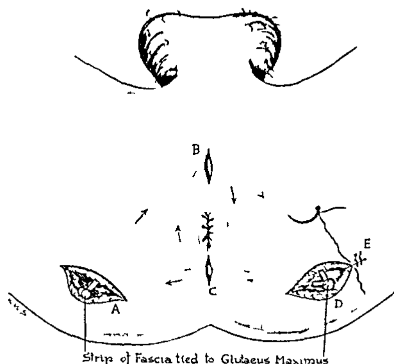
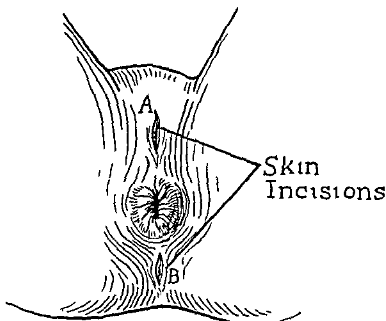


Fig 78 Operation for Anal Incontinence (Wreden Stone Technic)
B th strips of fascia in place in subcutaneous tunnel as shown by double dotted lines The ends of the fascia strips are pulled taut clo ing the anu and are fastened with a knot about the bundle of gluteus fibers *E* beginning closure of the small wounds (Aft r Stone)



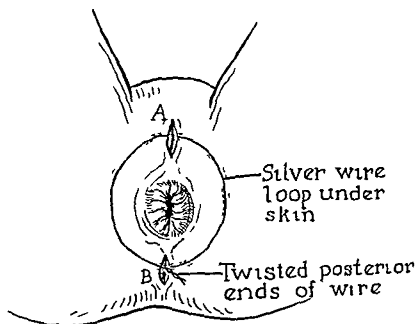


FIG 79 THE THIERSCH OPERATION

Step I Encircling silver wire loops are passed through anterior and po terior midline wounds A and B and snugged down

Step 2 The twisted posterior ends are turned in

of both needles The needles are then withdrawn, leaving the silver wire in place The wire ends are joined and twisted until they feel snug to the inserted finger of the assistant The wire is then cut short and buried in the subcutaneous tissue and the incisions are closed with one suture (fig 79)

If breakage occurs the wire must be removed and replaced by another If skin necrosis occurs the wire should be removed and the procedure repeated several months later

Enemas as required postoperatively anal exercises 50 times daily, and continuation of antibiotics for several days following surgery are important to obtain a satisfactory result

Chapter 19 PRURITUS ANI

PRURITUS ANI is the term applied to itching about the anus and is actually a symptom and not a disease entity Many forms of treatment have been advocated and a multitude of ointments have been developed and recommended, although very few, if any, have any specific value The reason for the many difficulties involved is the fact that the etiology of pruritus ani is not commonly understood or treated only symptomatic therapy being advised

It is our purpose in this chapter to give a new working classification of pruritus ani and to give our interpretation of its etiological factors and the simple therapeutic measures which we have found to give good results for each type We are aware that we are omitting a number of theoretical etiological factors in our classification but we have simplified the subject of pruritus ani as much as we can for practical office, and clinical working purposes and to avoid confusing the subject

Working Classification of Pruritus Ani

A *Simple Type*
  1 Due to discharge from fissure fistula or postoperative wounds
  2 Due to Aureomycin Terramycin and other broad spectrum antibiotics
  3 Due to amebic colitis
  4 Due to pinworm infestation

B *Fungus Type*

C *Intractable Type*

D *Neurogenic Type*

E *Allergic Type (Dermatitis Venenata)*

General Home Treatment for all Cases of Pruritus Ani

The following measures are general rules for home treatment of all cases of pruritus ani and are most important

1 Avoid all toilet paper Clean anus with cotton and mineral oil *after b m s and on retiring*

2 Apply a small pledget of cotton to anal verge to absorb discharge Change cotton several times a day

3 Avoid alcoholic beverages and highly seasoned foods

4 Sedatives especially one half hour before retiring give restful sleep and prevent harmful night scratching

These general rules are in addition to the specific therapeutic measures to be given in the following pages for the various types of pruritus ani

SIMPLE TYPE

1 Due to Discharge From Fissure Fistula or Postoperative Wounds

Any break in the skin or mucous membrane of the anorectum will create a purulent discharge which is irritating to the perianal skin A fissure a draining fistula or a postoperative anal wound will thus emit discharges that will give rise to pruritus ani

The treatment of this type of pruritus ani is simply the treatment of the underlying cause such as surgery for the fissure or fistula and continuous treatment and supervision of the healing of an operative wound While the patient is awaiting surgery or in cases of postoperative healing pruritus ani can be controlled by institution of the following measures

Home Treatment

Consists of the general home treatment given above plus

a 5% Boric acid ointment locally or

b Panthoderm cream (U S Vitamin Corp) locally or

c Rx Phenol 0 75
Menthol 0 25
Ung ammoniated mercury (10%) q s ad 30 0
Sig Apply locally after cotton and mineral oil cleansing

Office Treatment

An external local application of 10% silver nitrate solution followed immediately by another application of 5% tannic acid in 95% alcohol This combination gives relief of the pruritus protects the dermatitic perianal skin and promotes healing

2 Due to Aureomycin Terramycin and Other Antibiotics

Since the advent of Aureomycin and Terramycin medication a specific type of pruritus ani has developed According to statistics about 7 per cent of patients taking Terramycin or Aureomycin develop diarrhea or frequency of b m s gaseous distention and pruritus ani This pruritus ani has been described as an infection which affects the lower G I tract and anorectum Local findings are those of redness irritation and

abrasions about the anal canal and perianal skin and sometimes even ulceration of the rectum (proctitis)

Home Treatment

a Cessation of the offending medication
b Adequate intake of vitamin B Complex
c Abundance of cottage cheese buttermilk, acidophulus milk or tablets
d General home treatment, such as substituting cotton and mineral oil wiping for toilet paper dry cotton to absorb perianal moisture avoidance of alcoholic beverages and sedatives as indicated
e Panthoderm cream, or
f 5% boric acid ointment

Office Treatment

a Local application of a carbofuchsin compound (Carbo Fung solution) to pruritic skin, or
b Local application of 10% silver nitrate solution followed immediately by another application of 5% tannic acid in 95% alcohol

3 Due to Amebic Colitis

This according to our statistics and experience, is the most frequent cause of pruritus ani

It is only in the past several years that we have become cognizant of the frequency with which we found changes in habit time associated with pruritus ani At first when we began stool examinations for parasites and ova it was surprising and, to us coincidental to find endamoeba histolytica present in the stool of many of these patients Once the association was manifest we began to search for other symptoms and it was not uncommon to find abdominal cramps R L Q pains and tenderness, frequency of b m 's and/or constipation, as well as fatigue anorexia, and weakness

Many of these patients had been under therapy for spastic colitis mucous colitis " regional colitis or "chronic appendicitis Many had been subjected to appendectomy cryptectomy, and hemorrhoidectomy only to have their symptoms recur and persist

Examination usually reveals a simple perianal irritation and a negative proctoscopic and sigmoidoscopic examination Occasionally sigmoidoscopy may reveal amebic ulcerations or more frequently a slight redness of the mucus membranes and small pre ulcer areas which are raised and reddened An increase in secretion of mucus is usually noted

Many a physician has suspected amebiasis on a patient and has had repeated stool examinations which were negative for parasites and ova Very few technicians are sufficiently trained in parasitology to perform adequate examinations, and most stool specimens are allowed to stand for many hours before examination making it almost impossible to find any organisms whatsoever

Many amebicides have been reportedly described with apparently good results such as Fumidil Terramycin Bacitracin and Magnamycin, but in our experience the above mentioned drugs have not been any more successful in alleviating the symptoms or the parasite than the old reliable drugs to be mentioned under treatment

In our hands diodoquin and carbarsone have given uniformly good results in about 90% of the cases We do not hesitate to prescribe diodoquin and carbarsone in those cases in which we suspect amebiasis although the stool examination is negative Those cases which respond clinically but still have positive stools we feel are carriers and we advise 7 days of diodoquin therapy every month for 6 months Chronic amebiasis is a very intractable disease and very difficult to cure completely One should not become discouraged if positive stools are reported after several courses of treatment We occasionally include the antibiotics in intractable cases (See chapter on Amebiasis)

Home Treatment

a Diodoquin gr X three times a day for 10 days followed by
b Carbarsone 0 2 Gm for 10 days
c Repeat both of the above courses
(Carbarsone is a powerful arsenical and *should not* be taken for more than 10 days at a time It should not be given to patients with liver or kidney pathology)
d Panthoderm cream
e 5% Boric Acid ointment
f General home care as described before

Office Treatment

a 10% silver nitrate applications to perianal skin followed at once by 5% tannic acid in 95% alcohol

4 Due to Pinworm Infestation

Although we do see pinworm infestation occasionally it has been comparatively uncommon in our proctologic practice The pediatricians report the presence of this condition more commonly than the proctologists The pinworms are usually seen during sleeping hours Procto

scopic examination will frequently reveal the motile pinworm in the anorectum If the organism is not visible scotch tape applied to the perianal area on retiring and removed in the morning will usually reveal the parasite or ova

Home Treatment

a The best medication in our experience to date for the eradication of this parasite is Terramycin
Dose in adults 250 mg four times a day for 7 days
Dose in children 75 150 mg four times a day for 7 days depending upon age and weight
b Treat the entire family—mother father, brothers sisters and servants—if permanent relief is to be obtained because one infects the other
c Scrub hands and nails after each toilet
d Daily change and boiling of bed linens and underclothes for the duration of the treatment is also very important
e Aerate sleeping rooms each morning
f Local application of Panthoderm cream or
g 5% boric acid ointment
h General home treatment as described before
i Several newer and more recent medications have been reported with good results—namely 1) Antepar and 2) Pipizan

Office Treatment

a 10% silver nitrate application followed at once by 5% tannic acid in 95% alcohol will protect and heal the abraded areas and relieve the itching

FUNGUS TYPE

This type of pruritus ani is fairly common and is quite easily recognized as a moist dermatitis with a papulo macular eruption in ring formation around the anal opening Abrasions from scratching are also quite apparent (fig 80)

Home Treatment

a. General home treatment suggested previously is [illegible] rtant
b. [illegible]derm cream or
c. [illegible] acid ointm[illegible]

[illegible]eatment

[illegible] painting [illegible] itic area with ca[illegible]
[illegible] weekly

n

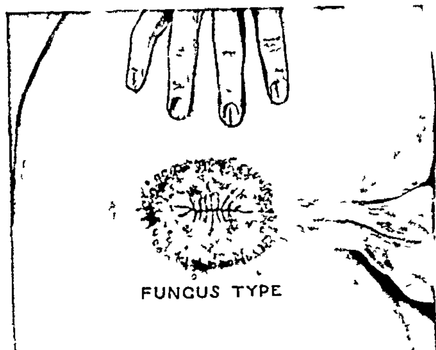


FIG 80 FUNGUS PRURITUS ANI
A papulo-macular dermatitis with ring formation around anal orifice

b Injection of Nupercaine in oil (Ciba) if the condition is severe and resistant to treatment The injections are made in 4 quadrants covering one quadrant at each sitting The injections are made with the aid of a 2 20 gauge needle with a 1 cc tuberculin syringe The injections must be made subcutaneously fanning out to cover the entire affected quadrant (fig 81) If the solution is injected into the skin instead of below or if a larger syringe is used and pooling occurs a slough may result In over 27 years of experience using Nupercaine in oil and a tuberculin syringe we have injected subcutaneously keeping the needle moving constantly and have never experienced a slough Results with this treatment are excellent and sometimes even dramatic

INTRACTABLE TYPE OF PRURITUS ANI

Although there is no definite proof it is our impression that this type of pruritus ani is the end result of a long standing chronic itch possibly caused by the irritating end products of putrefaction fermen tation or chronic amebiasis The constant scratching and dermatitic

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h General home treatment as described before
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FUNGUS TYPE

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Home Treatment

a General home treatment suggested previously is very important
b Panthoderm cream or
c 5% boric acid ointment

Office Treatment

a Thorough painting of the dermatitic area with carbo-fung solut 3 times weekly

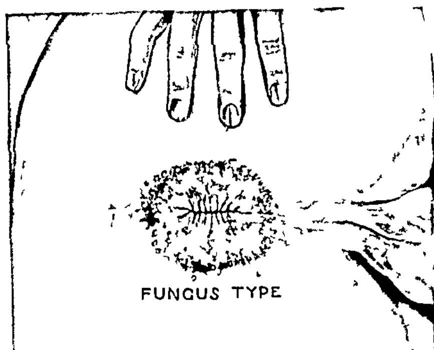


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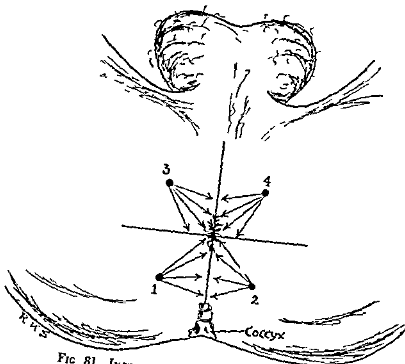


Fig 81 Injection Treatment for Pruritus Ani
Subcutaneous injections of nupercaine in oil are made fanwise from points 1 2 3 and 4 One quarter is done at each sitting

reaction over a period of years results in fibrosis, abrasions, and lichenification (fig 82)

Treatment of this type is non specific In other words we attempt to give relief by a combination of home, local, and surgical treatments As the name 'intractable' suggests, the condition is difficult to eradicate and is notorious for its exacerbations and remissions If medical management does not succeed or if recurrences are frequent, surgery is advised The operation of choice in our hands as well as in the hands of many other proctologists is the modified 'Ball operation' commonly called the 'cloverleaf operation' or 'perianal neurotomy'

Home Treatment Before Surgery Is Found Necessary

a General home treatment given before
b Panthoderm cream or Pantho F cream (Panthoderm with hydrocortisone), or
c 5% boric acid ointment

Office Treatment

a Local application of 10% silver nitrate solution followed immediately by 5% tannic acid in 95% alcohol, or

b Thrice weekly paintings with carbo fung solution

c Subcutaneous injections of anesthetic oil

If no relief is obtained, or if several recurrences are experienced surgery is advised

In our hands the "cloverleaf" operation or perianal neurotomy has given relief to intractable, chronic recurrent pruritus ani patients in 95% of the cases Recurrence after this operation is rare and can usually be relieved by the injection of Nupercaine in oil and a few local treatments Establishment of the 'general home treatment' described previously is readvised It is very rare that surgery has to be repeated The intractable type of pruritus ani is the one type that most often requires surgery

Surgical Treatment

Patients scheduled for the "cloverleaf" operation can be told that they will be free of the itching syndrome from the first day following surgery All of them are very grateful We have found this operation to be one of the most gratifying of all treatments for pruritus ani

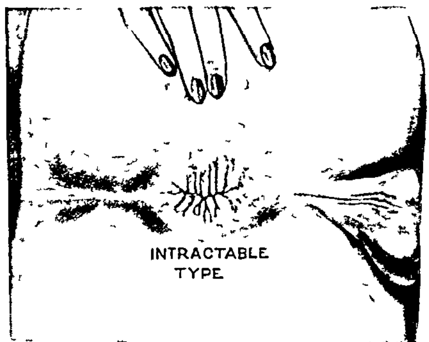


FIG 8 INTRACTABLE PRURITUS ANI

Note the whitish discoloration (lichenification with erosions) These changes are usually only close to the anus.

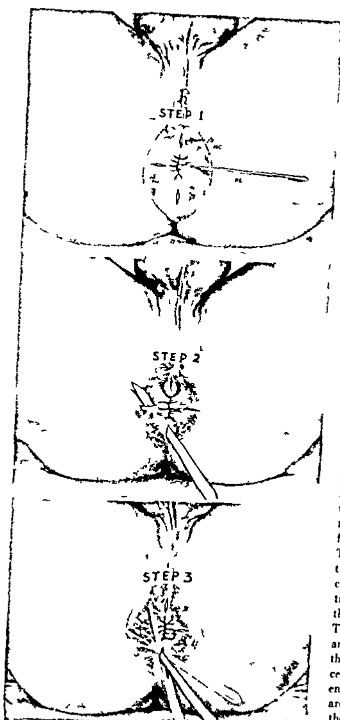


Fig 83 step 1 One half inch incisions are made in four quadrants as illustrated. If skin tags are present, the ex cised tag areas may act as the inci ion for the first step in the cloverleaf operation

Fig 84 step 2 A scalpel is forced under the skin from one incision to the next ad joining inci ion as above

Fig 85 step 3 The scalpel lying on its side is moved in sawlike manner severing the nerves as it separates the skin from the subcutaneous ti u The blade cuts in one direc tion and is then reversed cutting in the oppo ite direc tion until all of the nerves in the quadrant are severed The knife is then removed and forced subcutane u ly to the next inci icn This pro cedure is repeated until the entire sul cutaneous pruritic area has been separated from the affected skin above

FIGS 83-87 CLOVERLEAF OPERATION FOR PRURITUS ANI

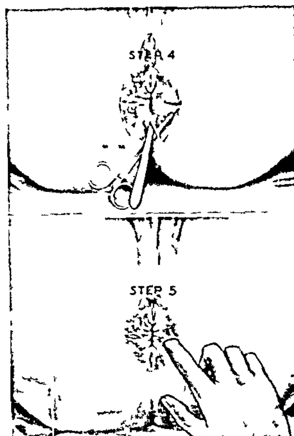


Fig 86 Step 4 A hemostat is passed from one incision to the next and the loosened segment of pruritic skin is retracted outwardly bringing into view the anal verge The scalpel then proceeds to sever the nerves close to and in the anal opening (which is also commonly affected by the pruritic condition)

Fig 87 Step 5 A finger is dipped into an antiseptic solution and passed under the skin in all directions to determine whether any skin and nerve areas are still attached to the subcutaneous tissue

The cloverleaf operation consists of undercutting the perianal pruritic skin If there are skin tags fissure in ano or crypts the excision of these pathological areas will constitute one of the incisions of the clover leaf operation A brief description of the operation is here with given

Usually four radial incisions about ½ long are made starting at the anal margin The knife is inserted into the subcutaneous tissues through one of these incisions and pushed through to the next incision The skin is undermined in this way throughout the area of pruritus thus severing the superficial nerves in the area involved in the pruritus In some cases this undercutting is extended into the vulva in the female Bleeding is controlled by pressure bandages which are removed in 24 hours No oxycel or drains are placed under the skin flaps because we experienced several sloughs following this technique (figs 83 84 85 86 87)

FIG 88 NEUROGENIC PRURITUS ANI

A localized patch of grayish white dermatitic skin

FIG 89 DERMATITIS VENENATA

An extensive weeping outwardly spreading dermatitis with redness maceration macules papules and edema

Postoperative Office Treatment

Postoperative office treatment consists of applications of 10% silver nitrate solution to surgical wounds, followed by a dressing of Desitin cod liver ointment

Home Treatment

Home treatment consists of sitz baths twice daily, Desitin ointment applied internally and externally, phenaphen and codeine gr ½, one half hour before b m s and as necessary for pain thereafter

NEUROGENIC TYPE

This type is characterized by a local patch of perianal dermatitis which is either raised thickened or weeping It is usually found in highly emotional neurotic types of individuals and will frequently be associated with areas of neurodermatitis in other parts of the body (fig 88)

Home Treatment

a The general home treatment described previously
b Sedatives as indicated One of our favorite prescriptions is Lusyn tablets 1 gr p c & h s
c Frequently these patients have emotional problems which require the help of a psychiatrist We are not opposed to such treatment and occasionally advise same
d 5% boric acid ointment or
e Panthoderm cream or Pantho F cream (Panthoderm with hydro cortisone)

Office Treatment

a Silver nitrate solution applications followed by the tannic acid solution thrice weekly
b Carbo Fung applications thrice weekly
c Nupercaine in oil injections into 4 quadrants 1 quadrant at a sitting and 2 sittings a week (fig 81)

Surgery

If the above treatment is ineffective (and it frequently is) then the clover leaf operation is advised as described before Excellent results can be expected from this type of surgery

ALLERGIC TYPES

Dermatitis Venenata (Allergic sensitivity to anorectal ointments)

Many a patient has developed an acute dermatitis venenata about the anus and perianal areas due to ointments or suppositories prescribed by a physician or druggist to which he is sensitive These patients present themselves with areas of edema excoriation, and weeping areas which may extend 6 to 12 inches about the anus (fig 89)

Home Treatment

a Cessation of all previously used anorectal medications
b Pantho F cream (Panthoderm with hydrocortisone)
c Bland diet
d No alcoholic beverages or highly seasoned foods
e General home treatment of cotton and mineral oil instead of toilet paper for cleansing purposes
f Weak potassium permanganate solution, external irrigation twice daily or boric acid solution compresses
g Ice bag to perianal area during excessive itching periods is very helpful
h Antihistamines orally
i Sedatives for sleeping and during the day, as indicated
j ACTH or Cortisone is also given if above treatment does not produce results in a reasonable period of time

Office Treatment

a 10% silver nitrate solution followed by 5% tannic acid in 95% alcohol is good for local office treatment 3 times weekly
b This can be substituted by Carbo Fung solution (Carbo Fung Chemical Lab) 3 times weekly

Food Allergy —

Although we recognize food allergy as a possible cause of pruritus ani we have been able to get excellent results without giving the food problem any more attention than to advise avoidance of highly seasoned foods and alcoholic beverages However, if all treatments fail and a differential diagnosis suggests food sensitivity, we refer the patient to an allergist who is properly qualified to handle such a condition

Chapter 20

DIARRHEA FUNCTIONAL AND ORGANIC

Differential Diagnosis

When a patient comes in complaining of a chronic frequency and and looseness of stools it is the duty of the attending physician to determine whether the condition is due to a functional or to an organic disturbance The results of treatment will depend entirely upon this determination

FUNCTIONAL DIARRHEA

A patient who is suffering from a functional diarrhea will reveal the following symptoms and findings

1 Frequent loose stools without blood or pus
2 No loss of weight or strength
3 Proctoscopic and sigmoidoscopic examination reveals no ulcerative lesions or tumefactions
4 Stool shows no gross chemical blood
5 The blood count is essentially negative
6 X ray usually reveals an irritable colon
7 An Ewald meal may or may not present an achylia gastrica

Although the functional diarrheas do not present any history of anorectal bleeding occasionally a patient may have an associated hemorrhoidal condition which produces periodic or regular bleeding This condition can be easily ruled out by proctoscopic examination

ORGANIC DIARRHEA (DYSENTERY)

A patient with an organic diarrhea will come in complaining of the following symptoms

1 Frequent liquid stools with blood and pus
2 Usually a loss of weight and strength
3 Proctoscopy and sigmoidoscopy reveal some ulcerative or tumefactive lesion such as ulcerative proctitis polypoidosis pseudopolypoidosis or carcinoma

4 Stools show gross and chemical blood

5 Blood count may show a secondary anemia

6 X ray may reveal a pipelike colon (lack of haustrations) usually found in advanced cases of ulcerative colitis, or it may reveal a polyposis or carcinoma

If a patient presents a picture and findings of organic diarrhea or dysentery one of the following conditions should be suspected and diagnosed

CONDITIONS PRODUCING ORGANIC DIARRHEAS AND DYSENTERIES (Mayo Clinic Modified)

CHRONIC ULCERATIVE COLITIS

Historical data—Severe intractable exhaustive dysentery, secondary anemia leukocytosis visceral degeneration, anxious facies

Digital—A granular mucous membrane, plateau like mucosal studs and occasionally a narrowed lumen may be palpated

Stools—Bloody mucopurulent masses with little or no fecal matter, like sputum discharge from pneumonia

Proctoscopic—Edematous easily bleeding granular, diffusely diseased mucous membrane with uniform bowel contraction, ulcers myriad and minute

X ray findings—Feathery edge and occasionally a pipelike colon

BACILLARY DYSENTERY

Historical data—Acute severe illness Patient comes from districts where there are epidemics

Digital—The gloved finger will show blood and pus

Stools—Bloody mucopurulent Isolation of dysentery bacilli Shiga most toxic Blood agglutination tests are positive for one of the dysentery group

Proctoscopic—Edematous ulcerated mucosa covered with blood and pus

X ray findings—Negative in the acute stage but may show a pipelike colon if the condition is chronic

AMEBIC COLITIS

Historical data—History of exposure to contaminated water and food Alternating bloody diarrhea and constipation

Digital—Negative except in the chronic stage when a granuloma may exist which simulates a carcinoma

Stools—Liquid may be bloody but rarely purulent Endamoeba histolytica present on stool examination

Proctoscopic—Disseminated discrete oval shaped punched-out ulcers with fairly normal mucous membrane between

X ray findings—Evidence of organic changes frequently minimal Most marked changes in proximal segment starts at cecum and goes down to the rectum

POLYPOIDOSIS

Historical data—May be familial Progressive failure anemia and weight loss

Digital—Sensation of passing finger over rubber scrub brush

Stools—Loose containing blood and bloody mucus and of variable consistency

Proctoscopic—Innumerable polypoid tumefactions arising from the rectal mucosa and projecting into the lumen

X ray findings—Multiple polypoid projections from rectal and colonic mucosa

MALIGNANT LESIONS

Historical data—Change of habit time such as frequent stools or progressive constipation rectal bleeding and weight loss

Digital—A cauliflower mass can be palpated in about 60 to 70 per cent of the cases

Stools—Contain blood bloody mucus and feces and vary in consistency

Proctoscopic—Projecting tumor varying with type polypoid mucoid annular or adenomatous

X ray findings—Characteristic filling defect

TUBERCULOUS COLITIS

Historical data—Practically always secondary to pulmonary tuberculosis with alternating watery diarrhea and constipation

Digital—Large shallow depressions in otherwise normal rectum Lumen intact

Stools—Loose and watery no visible blood or pus tubercle bacilli may be present in stool examination

Proctoscopic—Irregular, large, discrete, sloughing ulcers with undermined edges Normal mucous membrane between ulcers

X ray findings—Changes in proximal colon and terminal ileum most common

TYPHOID FEVER

Historical data—Leukopenia acute severe illness positive Widal enlarged spleen and rose spots

Digital—Negative

Stools—Bloody mucoid, isolation of typhoid organisms in the stool

Proctoscopic—Negative

X ray findings—Negative

UREMIC COLITIS

Historical data—History of renal disease plus retention of nitrogenous products in the blood

Digital—Negative

Stools—May contain blood and are frequently watery

Proctoscopic—Negative

X ray findings—Negative

CONDITIONS PRODUCING FUNCTIONAL DIARRHEA

If the patient's history, laboratory findings, and proctoscopic examination are negative and fit the outline on page 167 then the patient is suffering from a functional diarrhea and one of the following conditions has to be considered The first three of the following functional conditions to be discussed are *the most common offenders The remaining conditions are only rarely seen*

GASTROGENIC DIARRHEA

Historical data—History of a long standing diarrhea with no loss of weight or strength No blood noted in stools

Digital—Negative

Stool—Negative

Proctoscopic and sigmoidoscopic—Negative

X ray—Negative

Ewald—Achlorhydria or hypoacidity

Neurogenic Diarrhea

Historical data.—History of periodic frequency of loose stools in a patient with an emotionally unstable makeup. No blood in stools; no loss of weight or strength.

Digital.—Negative.
Stool.—Negative.
Proctoscopic and sigmoidoscopic.—Negative.
X ray.—Negative.
Ewald.—Negative.

Sprue and Pellagra

Historical data.—Indeterminate irregular type of diarrhea without blood plus dietary deficiencies.

Digital.—Negative.
Stools.—Loose and watery alternating with normal stools.
Laboratory.—Negative.
Proctoscopic.—Negative.
X ray findings.—Negative.

Etiologic Classification of the Diarrheas and Dysenteries

Organic and Functional (Fradkin)

The following is another classification of the etiologic factors in chronic and acute diarrheas and dysenteries by William Z. Fradkin which may further help in the diagnosis and treatment of the following conditions:

Protozoa
- Endameba histolytica
- Balantidium coli
- Trichomonas int.
- Giardia lamblia
- Chiloma tix mesnili

Bacteria
- Dysentery bacilli
  - Shiga
  - Flexner
  - Sonne duval
  - Park Hiss
  - Mt. Dessert
- Streptococcus
  - Bargen diplococcus (nonhemolytic)
  - Hemolytic
- Salmonella bacilli (Paratyphoid group)
- Tubercle bacilli
- Treponema pallidum
- Anerobic bacilli
- Miscellaneous group

Intestinal Worms
- Ascaris lumbricoidis
- Oxyuris vermicularis
- Trichinella spiralis
- Strongyloides stercoralis

Hook worms
Taenia saginata
Taenia solium
Diphyllobotrium latum
Hymenolepis nana
Trichocephalus dispar
Shistosoma marisone
japanicun

Glandular Dysfunction
Gastric
Thyroid and parathyroid
Hepatic and renal
Pancreatic
Suprarenal

Infectious Diseases
Typhoid Cholera Malaria
Measles
Pneumonia
Influenza
Puerperal fever—septicemia
Appendicitis
Peritonitis
Diverticulitis

Blood Diseases
Pernicious anemia
Chronic leukemia
Purpura

Cardiovascular Diseases
Cardiac decompensation
Mesenteric thrombosis

Mechanical Factors
Benign and malignant tumors
Strictures
Foreign bodies—excess roughage
Fecal impaction
Cathartics
Postoperative

Vitamin Deficiency Diseases
Sprue Pellagra
Beriberi Scurvy

Psychogenic Factors
Fright shock anxiety worry

Allergic Factors
Food sensitivity

Heavy Metal Poisoning
Mercury
Lead
Arsenic

Chapter 21

CHRONIC AMEBIASIS AND AMEBIC DYSENTERY

Chronic intestinal amebiasis is a condition which is much more prevalent than realized even by the average general practitioner. It should not be confused with amebic dysentery which in the temperate zone is comparatively uncommon. The term amebiasis is so frequently associated with dysentery in the minds of many physicians that when a patient does not have diarrhea and bloody stools the diagnosis is not suspected.

The term amebiasis is used to describe that condition in which endamoeba histolytica cysts or trophozoites are found in the stool in patients who have many apparently unrelated symptoms. A good number of patients in whom we have made this diagnosis have been treated for spastic colon, irritable bowel, chronic appendicitis (with and without surgery), pruritus ani, psychoneurosis and many similar diagnoses.

In *acute amebic dysentery* the patients are usually quite ill and have numerous liquid stools (up to 20 to 30 daily) with mucous and blood. Fever, malaise, abdominal cramps and tachycardia are usually present, all of the usual signs of toxicity plus the diarrhea.

Prevalence.—Although amebic infections were formerly thought to be prevalent only among Central American, South American, Asian and African communities, recent surveys have revealed a fairly high rate in the United States. The following are a few of the statistics given in the literature:

Reports from gastroenterologists, parasitologists in Memphis	17%
Veterans with domestic service	10.1%
Soldiers in China Burma India theater	28.3%
Orphanage Children in Canada	37.50%
Pruritus Ani in Our Experience is caused by Amebiasis in	50%

Virulence of Strain.—Small cyst strains of endamoeba histolytica not commonly diagnosed in laboratories are pathogenic but are believed to be less pathogenic than large cyst strains.

Bacteria Ameba Relationship.—It has been found in laboratory animals that the presence of colon bacteria such as Escherichia coli or aerobacter aerogenes implanted in the cecum of germ free guinea pigs previously inoculated with ameba produce typical ulcerative amebiasis. This may be important because the successful treatment of intractable cases of amebiasis usually require additional antibiotic therapy.

Influence of Nutrition on Amebiasis.—Felsenfeld and Comess believe amebic parasites are reduced under a high protein, low carbohydrate diet. Whether this influence is exerted on the amebae or the bacteria is as yet not known.

Modes of Transmission.—It is believed by most investigators that the amebic cysts are transmitted through infected water, fresh vegetables and fruits and by food handling carriers.

PATHOLOGY

Although the initial lesions in an endamoeba histolytica infection are found in the colon, extraintestinal manifestations are occasionally found in the liver, the lungs, and the pleura. Rarely are cerebral and splenic abscesses seen.

Chronic Amebiasis.—Apparently, *asymptomatic cases* may or may not present discreet minute ulcers with normal mucous membrane between. The favorite sites of the infection are in the ileocecal, ascending, sigmoidal, rectal and perianal regions. Most frequently, chronic amebic patients present only the cyst in the stool without any visible mucosal findings.

Amebic Dysentery.—In acute amebic dysentery the lesions are more extensive presenting buttonhole ulcerations ranging in size from just visible to a little less than 1/2" in diameter. Submucous sinuses may connect the discreet ulcers with eventual coalescence and formation of larger irregular shaped ulcers. Bloody mucous is seen but little pus unless secondary invaders complicate the infection.

Amebic Granuloma.—A sausage shaped indurated tumor is occasionally found in any part of the colon or rectum resembling a carcinoma or a chronic inflammatory mass. This is important to keep in mind when a carcinomatous like lesion presents itself on proctosigmoidoscopic examination or x ray. A biopsy plus stool studies help to establish the diagnosis.

EXTRAINTESTINAL MANIFESTATIONS

Pruritus Ani —The most common extraintestinal manifestation of amebiasis is *pruritus ani* A mild amount of recurring and intractable perianal dermatitis with slight erosions has been noted in at least 50% of our cases of amebiasis

Hepatitis and Liver Abscess —The next most common extraintestinal manifestation is *hepatitis* which may be present at any time during the course of infection and is the result of amebic infection in the rectum and colon *Abscesses* are usually single and occur more commonly in the right lobe of the liver The abscess contains chocolate brown material consisting of liver tissue and blood If secondary bacterial infection occurs a purulent exudate is found on aspiration This is important to determine because antibiotic therapy as well as amebicides are then indicated

Pulmonary Abscess —Pulmonary abscesses may develop from direct extension from a liver abscess or by embolism from the bowel the latter being very rare

Pleural Effusion —If the hepatic abscess ruptures into the pleura without extension into the lung it may produce pleural effusion

RARE MANIFESTATIONS

Rare manifestations of amebiasis are cerebral and splenic abscesses Infection of the skin occasionally occurs around a draining liver abscess

Symptoms

D Antoni who has contributed a great deal to the subject of amebiasis offers the following symptomatic classification Pruritus ani which we have found frequently caused by chronic amebiasis has been added to A and B of section 2 of the following

1 *Asymptomatic amebiasis*

   Patient not cognizant of symptoms with lesions not confined to specific areas

2 *Symptomatic Amebiasis*

   A *Asyndromic* (formes frustes) —Mild toxemia and vague gastrointestinal irritation with lesions usually not confined to specific areas *Pruritus ani* may be present

Bacteria Ameba Relationship—It has been found in laboratory animals that the presence of colon bacteria such as Escherichia coli or aerobacter aerogenes implanted in the cecum of germ free guinea pigs previously inoculated with ameba produce typical ulcerative amebiasis This may be important because the successful treatment of intractable cases of amebiasis usually require additional antibiotic therapy

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Amebic Dysentery—In acute amebic dysentery the lesions are more extensive presenting buttonhole ulcerations ranging in size from just visible to a little less than ½′ in diameter Submucous sinuses may connect the discreet ulcers with eventual coalescence and formation of larger irregular shaped ulcers Bloody mucous is seen but little pus, unless secondary invaders complicate the infection

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Rare manifestations of amebiasis are cerebral and splenic abscesses. Infection of the skin occasionally occurs around a draining liver abscess.

SYMPTOMS

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1. *Asymptomatic amebiasis*

   Patient not cognizant of symptoms with lesions not confined to specific areas.

2. *Symptomatic Amebiasis*

   A. *Asyndromic* (formes frustes).—Mild toxemia and vague gastrointestinal irritation with lesions usually not confined to specific areas. *Pruritus ani* may be present.

B *Syndromic* —Symptoms simulating chronic appendicitis, peptic ulcer chronic cholecystitis, with lesions usually confined to cecal area *Pruritus ani* is commonly present

C *Dysentery* (acute or chronic) —Symptoms of dysentery, with lesions throughout colon, especially rectum and sigmoid

D *Hepatitis and liver abscess* —Fever, pain and tenderness in liver area, with lesions in liver tissue

E *Involvement of other organs* —Abscess of lung brain kidney amebiasis cutis, etc

Fatigue occurs most commonly, constipation, alternating with diarrhea, unexplainable vague pains in the abdomen (bowel consciousness) gaseous eructations after eating unstable pulse, tachycardia, nervousness, irritability, headaches which are recurrent and may last for several days and low grade afternoon fever of 100° F True diarrhea does *not* occur in more than 5% of the cases

Amebic Granuloma

Chronic infection and invasion of the wall by E histolytica occasionally results in the formation of a granulomatous mass which may be detected on sigmoidoscopic examination or barium x ray examination or on abdominal palpation These lesions closely resemble carcinoma and have been known to have been resected for such If the lesion is in the rectum or sigmoid, a biopsy and stool analysis will establish the diagnosis When the lesion is beyond the reach of the sigmoidoscope the diagnosis becomes more difficult but if the stool reveals positive findings the patient should be placed on a rigid course of amebicidal therapy before surgery is seriously contemplated One must keep in mind, however, that carcinoma may be present along with amebic trophozoites or cysts in the stool

Amebic Hepatitis and Hepatic Abscess

The early stage of *amebic hepatitis* may be so mild and the symptoms so vague that it is entirely overlooked or there may be hepatic enlargement and tenderness associated with pain or deep pressure over the liver Liver function tests are usually normal

With *abscess* formation there is a restricted mobility of the right leaf of the diaphragm obliteration of the cardiophrenic angle slight icterus elevation of the white count and a rise in temperature Liver function tests are usually normal

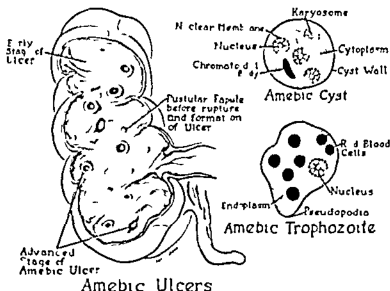


Fig. 90 Amebic Cysts Amebic Trophozoites and the Various Stages and Types of Amebic Ulcers

Note that the ulcers are discreet with apparently normal looking mucous membrane between the ulcers

Diagnosis

The absolute and most important finding in amebiasis is the visualization under the microscope of the motile or cyst forms of endamoeba histolytica (fig 90) Proctoscopic and sigmoidoscopic examinations help corroborate the diagnosis This is usually accomplished by the following

Laboratory Tests

1 *Fresh* stool—unstained
2 *Fresh* stool—stained with D'Antoni's Iodine stain
3 *Fixed* smear—using Faust's Hematoxylin stain
4 Zinc Sulphate Centrifugal Flotation Test
5 Compliment fixation test (still in experimental stage)

These tests are added in this chapter so that the proctologist surgeon and general practitioner will be familiar with the procedures and will be in a position to intelligently request same from the laboratory or laboratory technician

It must be kept in mind that a negative stool is not proof that amebiasis does not exist Tests have to be repeated and occasionally suspected cases are placed on amebicidal treatment with negative findings

Regular Routine Test Procedures

1. One to three normally passed stools examined for ameba.
2. Swab the ulcer of the intestinal mucosa through the sigmoidoscope and examine for ameba.

For Elusive Problem Cases

1. A morning stool following a saline purgative the night before. (Use laboratory tests 1, 2, and 3 above.)
2. 1½ hours before sigmoidoscopy an enema consisting of a quart of physiologic saline (2 drams salt to a quart of water) is administered. After evacuation, repeat a similar salt enema and save the last portion for examination. (Use laboratory tests 1, 2, 3 and 4.)
3. During sigmoidoscopy, aspirate suspicious areas with long glass tube, to which is attached a rubber suction bulb. (Use direct fecal film examination.) It has been found that the above three procedures produce the highest percentage of positive findings (90%).

In cecal infections, cysts are usually found while motile trophozoites suggest recto sigmoidal involvement. Compliment fixation tests, although 90% efficient, are still in the experimental stage and usually not obtainable because of the difficulty in obtaining, preparing and standardizing a suitable antigen. *Clusters of fatty acid crystals* in the stool have recently been shown to be found in cases of chronic amebiasis, which do not reveal amebic cysts and trophozoites.

SIGMOIDOSCOPIC FINDINGS

Chronic Amebiasis.—In chronic amebiasis there is usually no mucosal findings. Occasionally one does see typical yellow elevated nodules or pinhead size discreet ulcers with apparently healthy non inflamed mucosa between (fig. 91).

Amebic Dysentery.—In amebic dysentery the lesions are minute circular pits or depressions. The margins of the typical amebic ulcer are undermined, and the floor is covered by a grayish white material which contains amebae (see fig. 90). The ulcers range from 2 mm. to 3 cm. in diameter. Submucous sinuses may connect the discreet ulcers with eventual coalesence and formation of larger irregular shaped ulcers. Bloody mucus is seen but no pus unless secondary invaders complicate the infection. As the word 'histolytica' implies there is a lysis of tissue the endamoeba histolytica not being a pus producing organism.

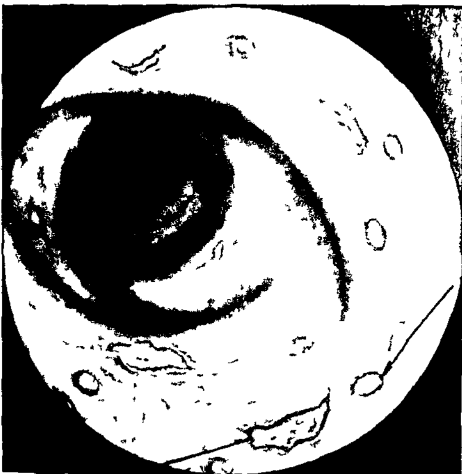


Fig. [illegible] Amebic Colitis

Note (1) the small discrete pustular pre-ulcer papule with healthy mucous membrane between and (2) later stage amebic [illegible] shaped punched out ulcer. Bottom arrow indicates necrotic pre-ulcerative amebic [illegible]; top arrow indicates later stage of amebic ulcers.

Differential Diagnosis

Cysts usually suggest infection in the cecum while motile trophozoites are mostly found in patients where the lesion is in the rectum and sigmoid. *In young people* with acute pulmonary conditions where the initial x-ray reveals complete obliteration of the lung field on the right side, cysts are frequently mistaken for an empyema or a tuberculous pleural effusion. However, the demonstration of a chocolate brown viscid fluid, plus stool findings of endamoeba histolytica establish the diagnosis of amebiasis with hepatic involvement.

In older people with chronic amebiasis ruptured abscesses *into the pleura* have been mistaken for malignancy of the lung and *pleura* *The* usual chocolate brown fluid obtained on thoracentesis plus *the absence* of tumor cells on smear of the fluid and the evidence *of an infectious* process as shown by a high white blood *cell count* and *increa ed tem*perature, establish the diagnosis *of* amebiasis

Some cases of liver abscess have been mistaken for pneumonia because the patient presents a picture of sudden acute chest pain with x ray findings in the right lower lung simulating primary pneumonitis Lateral views plus other findings establish the diagnosis It has been suggested that it is wise to consider the possibility of amebiasis in any chest lesion in which the area of the right diaphragm is obscured

If there is a reduction in excursion restricted mobility or fixation of the right leaf of the diaphragm obliteration of the cardiophrenic angle slight icterus elevation of the white blood count fever with normal liver function tests amebic abscess is usually the diagnosis

TREATMENT

Whenever there are many remedies offered for the treatment of a disease one can be certain that there is no specific drug and that cures are hard to obtain This is true of amebiasis We have excellent remedies, and we can control the disease, but we sometimes wonder whether we ever completely eradicate the parasite This is also the opinion of others who see and treat a great deal of this prevalent condition However by getting the disease under control and by getting the patients symptom free and by prescribing Diodoquin for a week once a month thereafter, we can keep the disease under control and relieve the patients of their symptoms in about 9 out of 10 cases The combinations of treatment and laboratory examination used in the treatment and control of acute and chronic amebiasis are given below

The drugs are divided into the following groups and are presented in each group in the order of their found value and tendency towards systemic reactions they are also presented to aid the physician in changing courses and medications when reactions occur Dosage is given for each

I IODOQUINOLINE

Diodoquin—6 to 10 tabs (10 gr) daily for 16 to 20 days

Vioform—1 5 to 3 0 Gm daily for 7 to 10 days (May produce undesirable G I symptoms)

2 ARSENICALS

Do not use this drug when liver damage or intolerance to arsenicals is known *Do not* use this drug for more than 10 days at a time

Carbarsone—0 25 Gm B I D for 10 days

Milibis—supposed to be less toxic, 0 5 Gm 3 times daily for 7 days (Not as good in children as in adults)

Fumadil—not fully evaluated as yet Dose 20 mg 3 times daily for 10 days

3 AMINOQUINOLINES

Chloroquine—Aralen (absorbed rapidly and has a low toxicity) Frequently used instead of Emetine Good in hepatic amebiasis not in the colon variety Diodoquin can be given concurrently or after chloroquine Dose 4 tabs daily for 2 days Then 2 tabs daily for 2 to 3 weeks

4 ANTIBIOTICS

To eradicate intestinal bacteria the presence of which seems necessary for the growth and multiplication of amebae

Penicillin—600 000 units daily

Sulfasuxidine—Dose 6 to 10 tabs daily Can be used instead or alternately with penicillin followed by Diodoquin

Achromycin—Dose 2 Gm daily for 10 days

Terramycin—May produce undesirable side effects Dose 2 Gm daily for 10 days

Aureomycin—(Is absorbed and has a systemic effect) Mycin drugs should not be used when there is a history of nausea vomit ing diarrhea abdominal pain and pruritus ani following the previous use of such drugs Dose 1 Gm daily for 10 days

Extraintestinal Amebicides

(liver lung and pleura remedies)

Emetine—(highly toxic and should be used with great caution) Dose—1 gr a day subcutaneously for no longer than 7 days

E B I (Emetine Bismouth Iodide) compound—not for ambulatory cases because of toxicity Considered good by the English Used in intractable cases Dose 65 mg tablets a m and p m for 10 days

Milibis with Aralen—Therapeutic test dose two tablets thrice daily for 7 days For a quick start and for rapid results in troublesome

difficult cases, an injection of 1 gr emetine hydrochloride and 1 capsule of Carbarsone 6 times on the same day is given This combination may also be used as a therapeutic test If the patient receives prompt relief from the above amebiasis should be diagnosed even though the stools are negative The following are the five types or stages of amebiasis and the treatment for each The prophylactic treatment is also included

SUGGESTED COURSES OF TREATMENT

1 PROPHYLACTIC TREATMENT

1 Diodoquin tab gr X t i d

2 CHRONIC AMEBIASIS (COLON TYPE)

1st course

Diodoquin gr X tabs —4 to 6 tabs daily for 10 days
Carbarsone 0 25 Caps —1 twice daily *for* 10 *days only* (very toxic)
Diodoquin—same as above for 10 days
Carbarsone—same as above for 10 days
Bland high protein diet
Repeat stool analysis 1 week after cessation of medication

2nd course

If the stool still shows cysts prescribe
Achromycin 2 Gm daily for 10 days
Aralen Milibis Tabs —2 tabs three times a day for 7 days
The above drugs are given concurrently
Examine stool after course of therapy

3rd course

If stool is still positive prescribe and administer
Combiotic (Penicillin and Streptomycin) 1 cc daily for 6 days
Aralen—1 tab twice daily for 14 to 21 days

Alternate courses

Combiotic for 6 days followed by
Achromycin 2 Gm in divided doses
Aralen and Milibis concurrent with above 1 tab four times a day for 16 days

AMEBIC DYSENTERY

1st course

Emetine—1 gr daily for 7 days
Diodoquin—gr X 2 tabs 3 times daily for 10 days
Bland high protein diet
Check rectal sigmoidal mucosa with sigmoidoscope and repeat stool
If positive findings wait a week and give the following

2nd course

Aralen Milibis tabs —2 tablets twice daily for 7 days
Achromycin—2 Gm daily for 10 days

HEPATITIS

Chloroquine (drug of choice)—1 Gm daily for 2 days and 0 5 Gm daily for 19 days If toxic symptoms develop discontinue medication for 24 to 18 hours
Thiamine—100 mg and Rubramin 30 mg hypodermically daily for 30 days
Diet—Low fat high protein high carbohydrate diet
Stool—check six weeks later

HEPATIC ABSCESS

Some abscesses will heal with drugs alone others require needle aspiration and drugs and still others require surgical drainage and drugs Treatment should be tried in the above order

Summary

Chronic *intestinal* amebiasis is the most common form of this disease and should be suspected when patients complain of pruritus ani or vague abdominal symptoms (The ulcerative dysentery type occurs in only 5% of the cases) Where physicians are cognizant of this disease and look for it they find it A negative stool does not rule out amebiasis Several stools should be examined some after a saline laxative if the ameba is difficult to find Amebic hepatitis should be suspected where an enlarged and/or tender liver is found A liver abscess which is not very common should be kept in mind and suspected when x ray ex

amination reveals an abnormal contour of the right diaphragm X ray examination of the colon may also locate an ameboma A viscid pleural fluid with or without blood should be considered suspicious of amebic ruptured abscess

The sigmoidoscope is valuable in visualizing discreet amebic ulcers with apparently healthy mucous membrane between It is also helpful in obtaining biopsies for differential diagnoses

Chapter 22 ULCERATIVE COLITIS

Ulcerative colitis, also known as idiopathic ulcerative colitis and thrombo-ulcerative colitis, is an acute and chronic disease of the rectum and colon. It is characterized clinically by frequency of bloody purulent stool, crampy abdominal pain, fever and anemia. This disease, although quite frequently observed in large clinics, is seen only occasionally in the private practice of proctologists.

Ulcerative colitis is chronic in nature and is notorious for its exacerbations and remission. Many observers believe that the majority of patients never get rid of their disease entirely except when ileostomy and colectomy have been performed. Respiratory and intestinal infections, emotional stress, overfatigue and pregnancy tend to produce recurrences. Ulcerative colitis should be differentiated from so-called irritable colon, commonly called colitis or mucous colitis, which in the true sense is not a colitis at all. Irritable colon patients do not present a proctologic picture of bleeding ulcers or pus. The mucous membrane in these cases appears intact.

Etiology

Despite extensive study in many institutions and despite the prevalence of such theories as bacterial infection, nutritional deficiency, allergy, metabolic disturbances, lymphatic obstruction, increased lysozyme, psychogenic and metabolic factors, the cause of ulcerative colitis remains unknown. It may begin at any age but it is most common in both sexes between the ages of 18 and 40, females predominating slightly. The disease is not infective or transmissible. It rarely occurs in more than one member of a family and inherited susceptibility is believed not to exist.

The disease may occur at any time of the year but is thought to present more exacerbations in the fall and winter. It may follow respiratory or enteric infections or excessive emotional strain. However, many cases deny any association between these factors and ulcerative colitis.

Pathology

The mucous membrane becomes studded with pinhead sized abscesses which break down forming ulcers. The ulcers tend to become confluent



FIG 92 ULCERATIVE COLITIS

Top half indicates acute stage (follicles swollen) Bottom half indicates chronic sta (superficial ulcers and granular areas)

destroying extensive portions of the mucosa (fig 92) In milder cases the mucosa remains peppered with ulcers which bleed easily and form a bloody mucopurulent discharge In the chronic intractable cases tremendous thickening of the submucosa and the subserosa hypertrophy of the muscle coat and a general shortening of the whole length of the large bowel occur The complete depth of the glands of Lieberkuhn are infected Frequently the mouths of these infected glands are temporarily sealed but burst forth to form ulcers Because this disease affects deep layers of the bowel it becomes obvious that antiseptic enemas or irrigations are of little value Where severe mucosal destruction occurs pseudopolypoidosis results

TREATMENT

The patients with chronic ulcerative colitis present a challenge, first, because the physician is expected to treat a disease the cause of which is unknown and second because there is no assured treatment However there are many valuable treatments which do bring relief and remissions and afford the patient a fairly normal existence

The primary treatment for ulcerative colitis is medical Surgery is used only for intractable cases for complications and for unresponsive fulminating cases Treatment of ulcerative colitis should be divided into

1 Symptomatic treatment
2 Supportive treatment
3 Specific treatment
4 Emergency treatment

1 *Symptomatic* treatment consists of abundant rest for the mild case but the patient should be kept ambulant performing his regular duties In severe cases hospital rest is indicated and necessary There is usually a protein and vitamin deficit due to the poor intake of food increased inflammatory exudate from the bowel increased catabolism during fever and impaired hepatic function Therefore a bland high protein *diet* for several months is necessary to correct the protein deficit Bismuth compounds Colloidal Kaolin pecten atropine like drugs barbiturates and occasionally for short periods the opiates are useful adjuncts

2 *Supportive* treatment consists of massive doses of vitamins liver blood transfusions saline and glucose parenteral alimentation

3 *Specific* treatment includes antibiotics sulfa drugs and psychosomatic treatment

4 *Emergency* treatment should be done for impending perforation and obstruction and consists of an ileostomy with or without a total colectomy depending upon the condition of the patient

TYPES OF CASES

There are three essential types of ulcerative colitis

1 The mild case
2 The intractable case
3 The acutely ill or fulminating case

1 MILD CASES

The mild cases do not appear very ill and are usually able to carry on their respective duties The temperature is usually normal or slightly elevated There are few, if any, other general symptoms These patients have several bowel movements a day, but are not incapacitated The ulcerative colitis is usually confined to the rectum and sigmoid The disease may last up to 2 or 3 months and then disappear If it is a real ulcerative colitis it will probably recur at some future time, such instances constitute about 40% of the cases

Diet—The diet should be high in protein and carbohydrates and low in fats Since their absorption rate is decreased, these patients should be encouraged to eat at least as much as, or more than, a normal person All varieties of food should be included except such gassy vegetables as garlic, onions and the cabbage family As many as six feedings a day can be given to accomplish this result At first, the diet should exclude mechanical and chemical irritants such as uncooked fruits and vegetables Condiments milk, alcoholic beverages and excessively hot and cold drinks should also be avoided Vegetables and fruits do not need to be pureed Later, when the diarrhea subsides citrus fruits pears bananas apples, and green leafy vegetables can be added to the high protein high carbohydrate, and low fat diet Vitamins psychotherapy antibiotics, sulfa drugs and cod liver oil (Desitin) suppositories as indicated and described under intractable type of ulcerative colitis in this chapter should also be used

2 INTRACTABLE CASES

Intractable cases are the common variety and constitute about 50% of the number seen They are known for their chronic continuous activity with varying degrees of incapacity These are the cases that go on for months or years and are stubbornly resistant to any and all treatment The entire colon is usually involved plus frequency of bloody purulent stool, anemia slight or great debility slight increase in temperature and pulse rate and varying degrees of weight loss Complications such as arthritis fistulae erythema nodosum and hepatic disturbances are found in this group

Despite clinical recurrences roentgen findings do not appear to change The amount of involvement noted at the first x ray examination

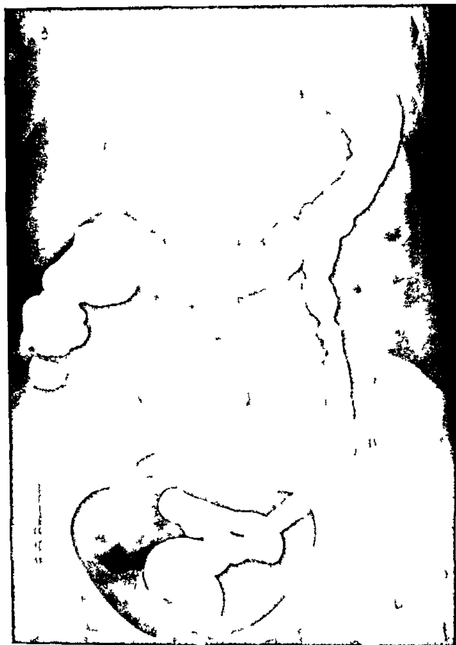


FIG. 93 ULCERATIVE COLITIS

Notice narrowing and smoothness of the bowel contour in the descending and sigmoidal areas giving rise to what has been called the lead pipe colon

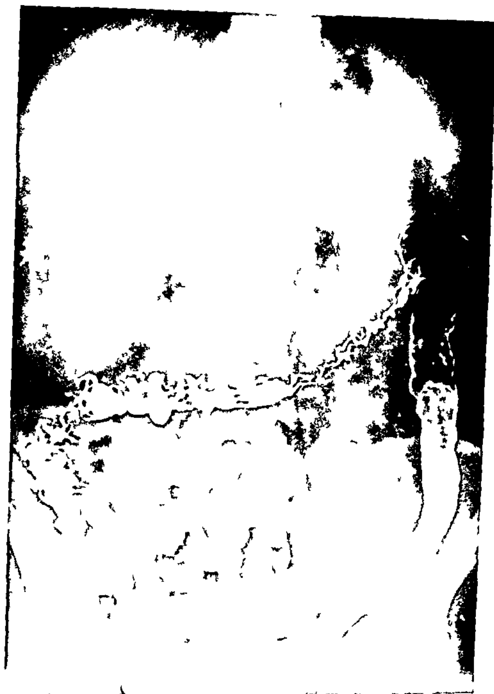


FIG 91 ULCERATIVE COLITIS

Notice the marked hyperirritability lack of haustrations narrowing and feathering of the bowel contour See figure 95 for higher magnification of the feathered contour of the descending colon

usually remains unchanged at future studies In some cases, repeated roentgen examinations over a period of years show no changes from normal (figs 93 94 95)

Diet—The diet should consist of bland food appealing to the patient and should be essentially high protein, high vitamin high carbohydrate and low fat Milk seems to be troublesome and should be omitted The cabbage and bean families as well as onion and garlic are best omitted These patients should be encouraged to eat more than the average person because their absorption quotient is diminished Alcohol in any form is detrimental

Vitamins—Rapid elimination and reduced absorption of food also means a diminished vitamin and mineral salt intake Therefore vitamins and mineral salts in large quantities is good supportive treatment Any good vitamin and mineral salt capsule in therapeutic doses can be prescribed

Psychotherapy—Psychotherapy has a place in the treatment of ulcerative colitis to help stabilize the patient s emotional life Careful listening to the patient s problem with a bit of good old fashioned family doctor s advice is a benefit The attending physician should constantly provide encouragement support and sympathy to the patient A patient should be repeatedly told that he is going to be well he should never be told that he may be a permanent semi invalid

Occasionally patients with problems too time consuming for the attending physician or too complex to cope with should be referred to a psychiatrist However treating this type of patient solely from a psychiatric approach without serious consideration to the medical management may lead to disaster

Antibiotics—The purpose of antibiotics in ulcerative colitis is to keep superficial infection in the bowel mucosa inhibited thus helping *to maintain tissue resistance Chloromycetin is our antibiotic of choice* given in doses of 2 caps 3 times daily for 7 days on and 7 days off After the condition is under control Chloromycetin should be given for a long period of time for 7 days once a month At no time have we noted any evident change in the blood forming organs nor have we seen any adverse side effects

Sulfa Drugs—Our choice of the sulfa drugs has been *Sulfathaladine* given in doses of 3 tabs 4 times daily This drug is alternated with *Chloromycetin* one week on and one week off There is a minimum of



FIG. 95 ULCERATIVE COLITIS

High magnification of a section of the descending colon in fig 94 showing lack of haustrations and marginal "feathering" or "fringing" in advanced case of ulcerative colitis

absorption with this sulfa drug and no side effects or change in the blood forming organs

Azopyrine has been used by us as well as others as another adjunct in the treatment of the chronic ulcerative colitis patient We feel that it is beneficial The drug is deposited in the connective tissue of the intestine It may cause temporary side effects such as nausea, vomiting headaches fever dermatitis generalized body aching however, if the drug is discontinued, the symptoms quickly subside and the drug is then continued again The dose is 2 tabs 3 times per day for 2 weeks This is followed by rest for 2 weeks and another course of the same drug once or twice depending upon the case response and progress

Steroid Therapy —If patients with chronic ulcerative colitis do not improve or have not improved with sulfa antibiotics sedatives antispasmodics etc, they are hospitalized and given ACTH injections intramuscularly 10 to 200 mg daily or oral administration of cortisone 2 tabs 2 to 4 times daily The therapeutic response and the stage of disease determines the dosage It is safest and best to start with small doses such as 10 mg ACTH or 100 mg cortisone increasing to the maximum dosage as indicated by the clinical response Long term therapy is advisable and gives the best results

ACTH and cortisone treatment should be started in the hospital where the rare complication of perforation or psychosis can be met adequately and promptly If the response is satisfactory and progress good the patient may be sent home and maintained by Achtar gel injections once daily or oral cortisone until satisfactory and sustained clinical improvement is obtained In many cases the response is dramatic simulating a spontaneous remission with a rapid disappearance of the acute symptoms a reduction in temperature improvement in appetite marked alleviation of the bloody purulent diarrhea and a feeling of well being This improvement of the patient may last for an indefinite period even after the steroids have been discontinued However if a relapse occurs reinstitution of treatment again produces a rapid response and an alleviation of symptoms

Possible complications such as hemorrhage psychotic symptoms Cushing s syndrome sodium retention and edema perforations from old peptic ulcers and perforations of the intestine should be kept in mind Local tenderness with signs of peritoneal tenderness and marked distension on roentgenologic examination suggest perforation and call

for immediate surgery *However, in our experience hormonal treatment has been satisfactory and dramatically helpful With careful observation complications have been minimal and of no serious import*

Cortisone by the intramuscular route in some cases produces more rapid response in acutely ill patients If this proves ineffective intravenous administration of 20 mg of ACTH every 12 hours in 500 cc of dextrose in distilled water should be tried Cortisone 100 125 mg can be given twice daily for 10 to 21 days Gradual reduction in dosage for 5 to 7 days before termination of either ACTH or cortisone is advisable

If water retention and edema occurs sodium *chloride* restriction should be instituted If not effective postassium chloride 0 9 Gm 3 times daily should be added

The lysozyme titer (normal 5) is increased in ulcerative colitis Steroids have been found to reduce this titer Antilysozyme compound such as Aerosol OT and hexadecyl sulfate do not produce noteworthy improvement

Suppositories—Cod liver oil suppositories (Desitin) *tend to allay* rectal tenesmus and should be inserted several times daily Occasionally we resort to opium and belladonna suppositories but only for a short period of time as they are habit forming

3 FULMINATING CASES

Fulminating cases fortunately are the smallest group They usually are the acute exacerbations of the intractable group of cases The onset is usually sudden accompanied by increased temperature, tachycardia toxemia abdominal distension prostration, dehydration and 20 to 30 sanguineous purulent stools a day These patients frequently become toilet ridden Complications such as hemorrhage, perforations peritonitis abscesses and fistulae marked anemia electrolyte imbalance and liver damage are common The prognosis in these cases is usually grave although occasionally some have a spontaneous unexplainable arrest These are the cases that require ileostomy as a life saving procedure, although conservative surgeons reject them as unsafe surgical risks

The onset of perirectal suppurative complications is marked by an intense flare up of fever high temperature and chills The rectal changes are not visible at first nor does digital examination reveal any positive findings About the fifth day the patient will complain of some perianal

pain and an edematous red spot will appear at the perianal region making a correct diagnosis possible.

Hospitalization of the acutely ill or fulminating case is absolutely necessary and should include mental and physical rest, restoration and maintenance of fluid, protein, blood and electrolyte balance. During *the acute fulminating attack these patients lose large quantities of the* above mentioned blood constituents and replacements should be made as quickly as laboratory tests determine the deficiencies.

Electrolytes.—When deficiencies of potassium, chlorides, sodium, calcium, or albumin have been determined by laboratory tests, infusions of glucose in either saline or distilled water with the addition of the above supplementary constituents should be administered until normal electrolyte levels have been established by further laboratory tests.

Diet and Nourishment.—Oral feeding during these acute episodes is not handled well by the patient. Fluids up to 3000 cc. daily including blood proteins, plasma, glucose and electrolytes are given as indicated. This type of feeding is usually kept up for about two weeks or longer if necessary. A good time to stop parenteral alimentation is when the stools have been reduced to 2 to 4 movements a day, which is usually around the fourteenth day. When the acute symptoms subside, farina, boiled rice, clear broth, melba toast, butter, eggs, tea, jello and custard are permitted. Later a bland diet and finally a gradual relaxation of the dietary restrictions until the patient is permitted to select additional foods which are appealing. The total daily intake should be about 3000 to 4000 calories.

Blood Transfusions are indicated in most cases and prove beneficial. The amount to be given is determined by the indications.

Sedation and Antispasmodics.—Acute fulminating cases do not handle oral medication well. Sedatives and antispasmodics are indicated and necessary, especially autonomic ganglion blocking agents such as Pro-banthine 10 mg. plus 25 mg. of Benadryl intravenously three times daily (Bercovitz). The doses of the drugs are doubled at bedtime. This combination of drugs gives the patient a high degree of sedation and antispasmodic effect. This may be continued throughout the period of parenteral feeding.

Antibiotics.—Since these patients do not tolerate drugs orally, Chloromycetin 1 to 3 Gm. daily added to 1000 cc. of glucose or saline solution is excellent treatment. The patient thus receives the fluids as

well as the antibiotics This not only may prevent surgery, but if surgery becomes a necessity as a *life saving measure the patient's intestinal* tract is prepared and ready for any procedure When the patient is able *to take food and medication orally* Chloromycetin should be continued in 1 to 2 Gm dosage for one week on and one week off Later, as the patient improves give 1 to 2 Gm daily for one week once a month This treatment may be continued indefinitely Despite former reports about blood changes in patients who have taken Chloromycetin, it is our impression (as well as that of other investigators) that no toxic or other untoward reactions occur from prolonged use of this drug in ulcerative colitis patients

Steroid Therapy—*This is the same for fulminating cases as for in* tractable cases including ACTH and *cortisone treatment,* sodium chloride restriction, and the use of potassium chloride (See page 193)

Vitamin K—Large doses *of Vitamin K sometimes helps to control* bleeding even though the prothrombin time is within normal range

Complications—Complications tend to develop in the majority of patients as the disease progresses Local changes include pseudo poly poidosis narrowing of the bowel lumen (figs 93 94 95), carcinoma hemorrhage, fistulae abscess and peritonitis Systemic changes include depletion of the electrolytes nutritional deficiencies, loss of weight, anemia, depletion of renal reserve, arthritis, and dermatological problems

INDICATIONS FOR SURGERY

Surgery should be limited to patients with complications such as perforation malignant *polypoidosis obstruction, chronic stricture mas* sive uncontrollable hemorrhage, and extensive unresponsive perirectal abscess and fistula This group comprises only a small percentage of those afflicted with ulcerative colitis Even the fulminating type of this disease occasionally responds to aggressive medical management The standard primary operation for ulcerative colitis is ileostomy with colectomy in one stage However in acutely ill cases the amount of surgery performed will depend upon the condition of the patient Taking out the colon removes both the diseased colon and the source of the extensive toxemia In good risk chronic intractable cases where life becomes unbearable despite all types of medical treatment if colectomy is decided upon the choice of operation is ileostomy and colectomy in

one stage The results in these combined procedures have been good and the patient is saved extensive hospital expenses and time away from his normal activities

Ileostomy and total colectomy do not interfere with childbearing Colectomized patients are capable of maintaining their homes having families, and living a fairly normal life

If a 2 stage operation is done daily irrigations of the distal loop with hydrosulphosol helps to reduce the degree of infection and promotes healing (Bercovitz) This is continued until colectomy is performed

COMPLICATIONS OF ILEOSTOMY

Before one recommends an ileostomy one should be aware of the numerous and formidable complications of this operation Most trouble some are partial ileal obstructions due to stenosis of the stoma or ileal serositis Other complications are prolapse cutaneous excoriation hernia alongside the ileal stoma abscesses and fistulae

CANCER IN CHRONIC ULCERATIVE COLITIS

The incidence of development of carcinoma of the colon in persons with ulcerative colitis is about 1 9% in comparison to 0 6% among hospital patients in general surgery and general medicine and 0 06% in the general population It is usually found in all old intractable recurrent cases with existing pseudopolypoidosis Although the death rate from cancer of the colon complicating ulcerative colitis is higher than that in the general population the patient and physician should not be unduly alarmed since the annual death rate from this complication is only one or 2 per hundred We feel that this higher death rate is not an indication for early colectomy as is sometimes advised Watchful conservative management with periodic cytological examination of the bowel content with emphasis on search for malignant cells we consider preferable to indiscriminate surgical intervention

PELVIC NEURECTOMY

Pelvic neurectomy is performed to place the distal colon sigmoid and rectum at rest which helps to control bowel movement frequency and affords the patient a great deal more comfort Bowel movements are frequently cut down to one to three a day with a diminution of

blood mucus and pus There are no complications to the procedure and further surgery if necessary, is not precluded This operation is contraindicated in those patients having pseudopolypoidosis, stricture, or partial bowel obstruction Although we have had no experience with this procedure it is worth keeping in mind for selected cases

To evaluate the possible benefit to be derived from a pelvic neurectomy it is advisable to administer 10 mg of probanthine intramuscularly followed by a barium enema, noting the effect upon the colon If existing spasm present before the administration of the probanthine is replaced by a distinct relaxation it can be precluded that a neurectomy will be beneficial

Chapter 23

PROCTITIS AND SIGMOIDITIS IRRITABLE COLON (MUCOUS COLITIS), BACILLARY DYSENTERY

Many factors may cause acute or chronic inflammation of the rectum and sigmoid In some cases the disease is confined to the rectum only but in the majority of instances the entire sigmoidal and colonic mucosa are involved It is therefore difficult to consider one without the other

An attempt has been made to compile the various factors which cause proctitis and sigmoiditis so that the physician may have a clearer understanding of the possibilities and a better conception of the indicated treatment Amebiasis and ulcerative colitis have been considered in detail in separate chapters (21 22 respectively) Factitial proctitis (radiation proctitis) will also be considered in a separate chapter (25)

Classification

SIMPLE PROCTOSIGMOIDITIS

Acute proctitis (primary)
- Highly seasoned foods
- Ptomaine poisoning
- Spoiled foods
- Alcoholic excesses
- Climatic changes
- Fermentative indigestion
- Fecal impaction
- Foreign bodies
- *Psychogenic*

Acute proctitis (secondary—usually terminal)

Cardiac disease
Kidney disease
Hepatic disease

CHRONIC (CATARRHAL)

Atrophic

Hypertrophic

Mucous colitis (irritable colon spastic colon)
Neurogenic
Low grade bacterial
Psychogenic
Endocrine
Allergic

MECHANICAL IRRITATION

Hard stools
Excessive roughage
Rectal constipation
Pederasty
Prostatic massage
Retroverted uterus
Pelvic tumors
Adhesions

ANORECTAL PATHOLOGY

Cryptitis and papillitis
Hemorrhoids
Fistula
Stricture
Polyposis and polypoidosis
Carcinoma of the rectum and sigmoid

DRUGS

Excessive use of laxatives and purgatives
Melanosis coli

SPECIFIC PROCTOSIGMOIDITIS

Bacillary (Shiga Flexner Strong Hiss Hiss Y, Sonne)
Acute and chronic stages
Amebic (Endamoeba histolytica)
Acute Dysentery form
Chronic Cystic form

CHRONIC ULCERATIVE PROCTOCOLITIS

Idiopathic ulcerative proctocolitis
Gonorrheal
Syphilitic
Tuberculous
Lymphogranuloma venereum (filterable virus)
Prestricture stage
Stricture stage
Parasitic
Flagellates
Worms
Erysipelatous
Diphtheretic
Po tradiation—factitial proctitis (following x ray and radium therapy for carcinoma of the cervix)

Acute Simple Proctosigmoiditis

Pathology —There is a hyperemia of the mucosa followed by an exudation of serum and leukocytes with a resulting edema The rectal discharge changes from a thin fluid consistency to a blood tinged mucus and later to a muco purulent or sanguino purulent discharge Usually only the mucosa and submucosa are involved although in some cases the muscular coat may also be involved with resulting periproctitis abscess and fistula

Symptoms —The patient presents a history of acute rectal bleeding abdominal cramps tenesmus, and frequent stools Proctoscopic examination reveals an ulcerative proctitis The culture is negative Serology is negative Direct smears are negative for trophozoites cysts and ova

Treatment —General treatment is started with an ounce or two of castor oil for preliminary cleansing Rest in bed is also advised Diet

Chapter 24

TUBERCULOSIS OF THE ANORECTUM AND COLON

CONTRARY to the general impression tuberculosis of the anus, rectum, and sigmoid is uncommon Even in institutions for the tuberculous, anorectal tuberculosis exists in only a small percentage of cases Statistics range from 3 to 7 per cent in America In this country a fair rule to follow is No pulmonary tuberculosis, no anorectal tuberculosis

Etiology

Mycobacterium tuberculosis is the etiological factor In well regulated communities where milk is pasteurized the bovine type is practically never seen I have seen only one case of bovine tuberculosis in a patient from a rural community

Types

Perianal —Tuberculous ulcer lupus vulgaris, verrucose ulcer

Anal —Anal abscess anal fistula

Proctocolitis —Ulcerative proctitis, acute diffuse enterocoloproctitis tuberculous rectal stricture, miliary proctitis and sigmoiditis tuberculous granuloma hyperplastic enterocolitis (ileocecal area), tuberculous enterocolitis, miliary tuberculosis

Route of Spread of Infection

(1) Direct (most common) from swallowed tubercle bacilli, (2) lymphatic extension (relatively rare), (3) hematogenous (rare and accompanies miliary tuberculosis)

Pathology

Tuberculosis of the lower bowel as elsewhere is at first a lymphatic disease Solitary follicles become hyperplastic and appear as plaquelike areas gray or translucent elliptic or circular and are elevated about a millimeter above the surrounding mucosa Ulceration of the follicle

begins early, the mucosa breaks down with resulting necrosis of its center Small ulcers coalesce forming large ragged sloughing ulcers The edges of the ulcers are undermined the center of the base is raised while its edges are depressed and covered by irregular pale granulations Tubercle bacilli are not commonly found in the pus but may be found in the scrapings from the ulcer Contrary to a general impression that tuberculous ulcers spread transversely, clinically they have been found to spread in any direction Tuberculous granulations microscopically present fibroblasts capillaries fibrin lymphocytes Langhans giant cells tubercle formation with a necrotic center fibroblastic capsule and monocytic or lymphocytic infiltration

Perianal Tuberculosis

Tuberculous Ulcer —This is the most common of all of the perianal lesions It is one of the complications of tuberculous enterocolitis It appears either as miliary oval ulcers or as an irregular destruction of skin extending into the anus but not involving the mucosa The diagnosis is made by finding tuberculous changes at the bottom of the ulcer or at its edge The ulcer is slow growing and usually persists until the death of the patient from the pulmonary involvement

Treatment local —Treatment consists of cauterization by the electric cautery or by fulguration or complete excision Dusting powders such as thymol iodide or iodoform are helpful Silver nitrate 5 to 25 per cent Argyrol 20 per cent balsam of Peru 25 per cent and aqueous methylene blue 2 to 10 per cent Sunlight ultraviolet ray and x ray have helped Sometimes temporary colostomy is done to divert the fecal current from the intractable ulceration

Lupus Vulgaris —This is a rare form of perianal lesion which begins as a small anocutaneous nodule which breaks down forms ulceration and spreads perianally and sometimes intraanally The lesions are not painful but the discharge from them causes pruritus The finding of epithelial pearls in the biopsy specimen makes the diagnosis The treatment is the same as that used for tuberculous ulcer

Verrucose Ulcer —This type of perianal tuberculosis is very rare It appears as an exudative warty lesion darker than the contiguous skin Local treatment consists of fulguration and excision For general and specific treatment see treatment under rectal tuberculosis

ANAL TUBERCULOSIS

This consists mainly of an anal abscess and fistula. This type of intestinal tuberculosis usually begins in a crypt, followed by abscess and fistula. The condition is characterized by an external opening with large, gaping undermined edges and a patulous eaten out tract.

Diagnosis.—The diagnosis is made from a history of pulmonary tuberculosis and from the finding of tuberculous granulation tissue on biopsy examination taken from the gelatinous granulation tissue which lines the cavity or tract.

Treatment.—Treatment is the same surgical management as for other abscesses and fistulae (see chaps 11 and 12) and the results are very satisfactory contrary to a general impression. The elimination of suppuration and the nervous relief following the removal of a focus of irritation and pain have proved beneficial in the majority of cases. For general and specific treatment see page 210.

RECTAL AND COLON TUBERCULOSIS

TUBERCULOUS ULCERATIVE PROCTOCOLITIS

This form of intestinal tuberculosis is one of the most common types affecting the rectum. It is practically always secondary to an active pulmonary tuberculosis, progressing from the ileocecal area above downward to the rectum.

SYMPTOMS

The symptoms are practically identical with those of other diseases producing ulcerative proctitis and colitis, namely, abdominal pain, backache, urgency and frequency of stool and the passage of loose feces containing blood, pus and mucus. The general condition of the patient depends upon the degree and extent of tissue involvement.

DIAGNOSIS

The ulcers are usually found in bedridden patients with active far advanced pulmonary lesions. The development of digestive disturbances, abdominal cramps and diarrhea with blood and pus in the stools is very suggestive of tuberculous ulceration of the rectum and colon. The ulcers vary from a few millimeters to several centi

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tive they are irregular in outline edges are thickened, raised and
... uned (fig 96) The base of the ulcer is covered with a yellow
ture' ... membrane which bleeds easily on swabbing and leaves a
nodular or pebbled appearance The mucosa between the ulcers
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...erential Diagnosis —This condition should be differentiated from
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TREATMENT

...most important part of the treatment is clearing up or arresting
...ulmonary involvement Local treatment of the ulcers through the
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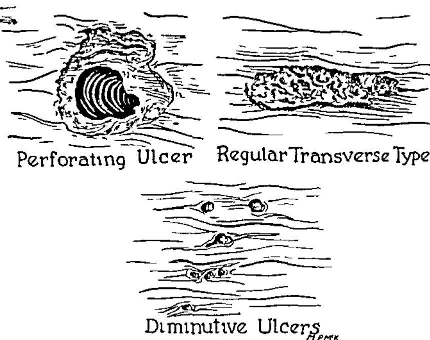


Fig 95 Tuberculous Ulcers

The above shows variou types of tuberculous ulcers een in the rectum and the colon

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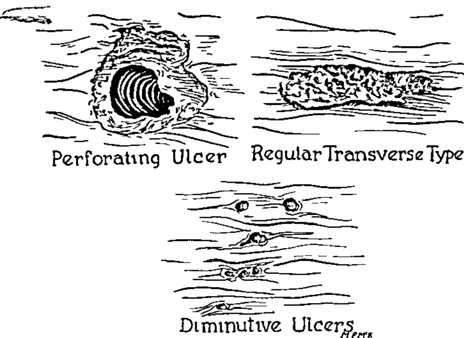


FIG 95 TUBERCULOUS ULCERS
The above shows various type of tuberculous ulcers een in the rectum and the colon

General Treatment—For diarrhea, abdominal distress, and rectal tenesmus, rectal installations such as the following are helpful

Rx—Warm olive oil, 2 ounces injected slowly to prevent immediate expulsion or
cod liver oil suppositories (Desitin) several times daily Occasionally opium and belladonna suppositories for a short period of time is helpful

Rx—Bismuth subgallate (aqueous suspension), 6 ounces
Sig Inject once or twice daily, preferably on retiring
Tr opii 10 drops and bismuth subcarbonate 30 gr four times a day orally sometimes helps to control diarrhea symptoms

Rx—Calcium Carbonate
Colloidal Kaolin
Barium Sulphate aa 30 0 (as for x ray purpose)
Sig 1 teaspoon in H_2O several times daily

Calcium parenterally in bedridden cases is good to relieve pain to decrease inflammatory edema, to relieve circulatory stasis to stimulate phagocytosis and to hasten healing by stimulating fibrosis and calcification Intramuscular injections on alternate days for a period of months of calcium gluconate 10 cc of a 10% solution

Diet should be bland high caloric and high vitamin with especially large doses of vitamin C and calcium Cod liver oil and tomato juice or haliver oil brewer's yeast and ascorbic acid 50 to 300 mg daily For anorexia and nausea small feedings of gelatin or gruel Pectin—agar with vanilla malted milk or grape juice or pineapple juice has been good over a long period to allay hyperperistalsis

Ultraviolet rays preferably natural sunlight, cold quartz or special ultraviolet giving carbon arc lamps is good general treatment

X ray is helpful where peritoneal tuberculosis or ascites complicates the picture X ray can be given simultaneously with ultraviolet rays

Specific Therapy—Chemotherapy, using Streptomycin, P A S (Para aminosalicylic acid) and Isoniazid although not true specifics for tuberculosis are being used singly and in combinations with good results Chemotherapy should be used for at least a year and, in advanced cases up to 18 to 24 months Some clinicians feel that the drugs should be used for about a year after the patient has achieved an inactive status

When serious intolerance or toxicity develops to one drug or pair of drugs other antimicrobial therapy should be substituted

Streptomycin and Dihydrostreptomycin—Each has the same value and the dosage is the same for both, 1 Gm twice weekly intramuscularly To avoid vestibular and auditory complications experienced clinicians prefer a combination of both 0 5 Gm each If hypersensitivity occurs to Streptomycin in the form of drug fever rash or exfoliative dermatitis switch to dihydrostreptomycin In acutely ill cases give Streptomycin daily 1 0 Gm for 30 days then decrease frequency to twice weekly

Isoniazid is good treatment When given alone this drug has produced more favorable results than any other antituberculous drug The dose is 300 mg daily Peripheral neuritis is one of the toxic side effects However Vitamin B (Pyridoxine) in doses of 50 100 mg three times daily can be given before or after neuritis has developed Isoniazid may cause convulsions or psychotic disorders in patients who previously have had such difficulties In such patients barbiturates should be given at the same time

P A S (Para aminosalicylic acid) is another antituberculous drug of great value The dosage is 12 Gm daily Side reactions of anorexia nausea or diarrhea may develop Only rarely does dermatitis or a condition simulating infectious hepatitis develop There is a PAS Calcium and a PAS potassium used to avoid side effects In acutely ill patients unable to take medication orally a lyophilized form of PAS can be given parenterally for short periods PAS is only slightly toxic and is being tried in combination with streptomycin

SUGGESTED COURSE OF TREATMENT

1 Isoniazid 300 mg daily plus PAS 12 Gm daily or
2 Isoniazid plus Streptomycin 1 Gm twice weekly or
3 Streptomycin 1 Gm intramuscularly 2 or 3 times weekly and 12 Gm of PAS or 15 Gm of Pas Sodium orally in 3 doses or
4 Isoniazid plus streptomycin 1 Gm twice weekly plus PAS 12 Gm daily by mouth divided in 3 or 4 doses This last combination can be used but it is believed not to be better than the others and intolerance to one or more drugs may occur

Pyrazinamide (PZA) and Seromycin are new antibiotics now being tried for the treatment of all types of tuberculosis but conclusive data is not available at this time

Surgery—The anorectal surgery of *tuberculous abscess and fistula* is the same as for abscess and fistula otherwise See Chapters 11 and 12 If tuberculosis of the recto-colon is progressive destructive, and obstructive, a palliative colostomy may be required

ACUTE DIFFUSE ENTEROCOLOPROCTITIS

This condition is a frequent complication of advanced pulmonary tuberculosis and is present in 46 to 80 per cent of the terminal lung cases as reported by different observers The picture is practically the same as that described above under the heading of Tuberculous Ulcerative Proctitis, only in a more advanced, more terminal state with more extensive ulceration, more aggravated symptoms and marked prostration The treatment is the same as for proctocolitis

MILIARY PROCTITIS AND SIGMOIDITIS

This is a rare condition usually associated with a generalized miliary tuberculosis, which has its primary focus in either the lungs or the genito urinary system

TUBERCULOUS RECTAL STRICTURE

For some years previous to 1925, before Frei published his test for lymphogranuloma inguinale strictures of the rectum were thought to be syphilitic, tuberculous, gonorrheal and idiopathic In the past few years however we have discovered that most rectal strictures are due to the lymphogranuloma venereum virus Tuberculous tubular rectal strictures are very rare even in institutions for the tuberculous In a series of 129 rectal stricture cases studied over a period of three years at the Cook County Hospital Rectal Clinic we did not find a single one of tuberculous origin Mucosal ring stricture may occur at the site of a healed or healing ulcer

TUBERCULOUS GRANULOMA

Tuberculous granulomas although reported by some in the literature previous to 1930, are questionable, it is very possible that they were lymphogranuloma venereum strictures with associated pulmonary infection We have never seen a tuberculous granuloma, and institutions for

the tuberculous are very evasive in their description of this condition in the rectum Granulomas of this kind are more frequently reported in the ileocecal region under the heading of hyperplastic tuberculosis

HYPERPLASTIC ENTEROCOLITIS

Hyperplastic enterocolitis is a rare condition, usually primary probably of bovine origin most frequent between the ages of 20 and 40, and in contrast to the destructive ulcerative type hyperplastic tuberculosis is a chronic productive inflammatory process This condition has also been called tuberculoma" and fibrous tuberculosis "

Pathology —The disease usually involves the ileocecum although any portion of the colon can be affected In America it is rather rare to find this condition in the last foot of the colon The disease is characterized by a proliferative thickening of the bowel wall with round cell and fibrous connective tissue infiltration The lumen is usually constricted, with dilatation and hypertrophy of the bowel above In some cases the entire colon is involved producing the condition frequently called stovepipe colon

Symptoms and Diagnosis —Because of the narrowing of the lumen digestive disturbances appear increasing to partial obstruction Diarrhea with blood and pus in the stools may be present The condition is very slow growing chronic and progressive On abdominal examination a large palpable mass can be felt in the cecal region

Differential Diagnosis —Because the literature and case reports are so evasive and indefinite it is the writer s impression that most of the descriptions of hyperplastic tuberculosis are really cases of regional ileitis and regional colitis It is also possible that a small percentage of them may be lymphogranuloma inguinale granulomas similar to the one the writer described in his series of rectal lymphogranulomatous strictures Cancer should also be ruled out

Treatment —Palliative treatment consists of oil by mouth bland diet normal saline enemas and Kalum 2 drams orally six times daily and through the rectum or through enterostomy in 2 ounce doses diluted in 6 ounces of warm water

The most satisfactory form of treatment is surgical excision either with primary anastomosis or in two stages with previous decompression enterostomy Emergency enterostomy may have to be done if obstruction is present For specific treatment see page 210

Chapter 25 FACTITIAL PROCTITIS

WHERE radium or x ray has been administered for the treatment of carcinoma of the cervix or uterus, a radiation proctitis or factitial proctitis, frequently occurs

PATHOLOGY

This consists of congestion and hyperemia, ulceration stricture and occasionally, fistula formation The pathogenesis follows direct radiation injury to the mucous membrane and thrombotic occlusion of the hemorrhoidal vessels with resulting infarction We like Sherman's classification

Grade I—Localized erythema and telangectasia

Grade II—Erythema is more diffuse and periproctitis is present with marked pain

Grade III—Ulceration of rectal mucosa with a pearly gray tenacious slough over lying it, usually found on the anterior wall of the rectum (fig 97)

Grade IV—Characterized by proctitis, ulceration, stricture and a recto vaginal fistula or bowel perforation

SYMPTOMS

The symptoms may come one month or several years after irradiation therapy although six months is the average In the early stages the only complaints may be rectal bleeding and the passage of mucus but as the condition progresses the patient will experience tenesmus diarrhea pressure in the rectum, obstipation, and in the stricture stages bowel obstruction

TREATMENT

Diet should consist of high calories and low residue Vitamin and minerals are to be given in adequate doses Iron B 12 liver and blood transfusions should be administered to combat anemia if indicated

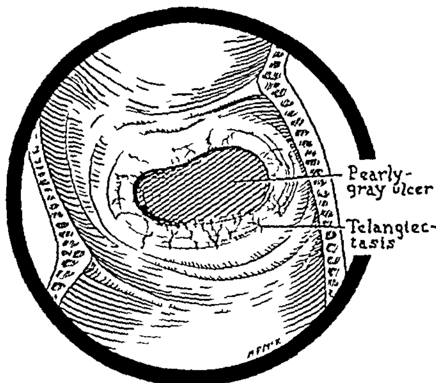


Fig. 97. Factitial Proctitis Ulcer of Rectum

Note the pearly gray base of the ulcer with telangiectatic markings radiating from its edges. This is usually the result of roentgen changes in the anterior wall of the rectum following radium or x-ray treatment for malignant pelvic conditions (in a female), especially carcinoma of the cervix.

HOME TREATMENT

Enemas, Instillations and Suppositories.—Following each bowel movement enemas with 2 ounces of extract of hamamelis are instilled into the rectum. For tenesmus 2 ounces of warm olive oil or 3 ounces of an aqueous suspension of bismuth subgallate are instilled into the rectum as necessary. Following the expulsion of the enema the patient is instructed to insert a cod liver oil suppository. This can be repeated several times daily.

In a recent publication Sherman described his treatment of 40 patients with topical applications of hydrocortisone applied to the lesion by means of suppositories and rectal applicators. He had his patients cleanse themselves with warm saline enemas twice daily and followed

suppositories allay tenesmus The latter can be used only for a short time as it is habit forming

Antibiotics —Penicillin is the treatment of choice and has been found to be almost a specific in army and navy hospitals The treatment is administered intramuscularly in 300 000 to 600 000 units daily for several days

Chloromycetin —1 cap 6 times daily orally

Terramycin —1 cap every 6 hours

Sulfathiazole —2-4 Gm in one dose on the first day, followed by 2 Gm daily for 10 days in divided doses

Sulfadiazine —4 Gm daily for 3 days in divided doses

Combinations of the above are sometimes necessary in intractable cases Adding a combination of vitamins with antibiotics i e, Terramycin S F, prevents such complications of oral antibiotics as colitis proctitis, and pruritus ani

Warts are treated with dusting powders of equal parts of calomel and zinc oxide powder or preferably excision followed by cauterization of the base with fuming nitric acid

SYPHILIS

Etiology —Treponema pallidum is responsible for an occasional congenital luetic complication of the new born and an occasional lesion of the anorectum in the adult

Classification —Congenital, acquired primary secondary, and tertiary lesions

CONGENITAL SYPHILIS

Congenital syphilis of the anorectum is not common but it is one of the earliest symptoms of the new born, occurring within six months of birth

Diagnosis —The diagnosis of congenital syphilis is made by the copper colored erythematous fissured ulcerated discharging perianal area positive Wassermann, the findings of palm and sole lesions Hutchinson s teeth swollen inguinal glands and retarded growth

Treatment —This is the usual treatment of syphilis in children plus calomel and zinc stearate dusting powder, equal parts applied locally

ACQUIRED SYPHILIS

Syphilis of the anorectum, contrary to a former general impression is rather rare It may be primary in this area but usually it is secondary to lues in some other part of the body

PRIMARY CHANCRE

The mode of infection in men is a chancre of the anus or rectum usually due to rectal intercourse In women it is due to perivaginal contact with the penis The ulcer usually appears within four to six weeks after exposure Location of ulcer is either at the anal margin or in the rectum proper

Symptoms and Anorectal Findings—Vary from slight anal ulcer discomfort to rectal stricture The common symptoms and findings are as follows *anal discomfort or no pain at all dermatitis* condylomata lata seropurulent foul-smelling discharge nonsuppurating inguinal lymph nodes and hypertrophic proctitis and stricture (rare)

Treatment of Early Syphilis—600 000 units of *penicillin* daily for a total dosage of 6 000 000 units A *dusting powder* locally with equal parts of calomel and bismuth

SECONDARY SYPHILIS

Secondary syphilis appears in the form of mucous patches or venereal warts about the same time that the secondary skin manifestations present themselves

Symptoms and Anorectal Findings—Mucous patches in the rectum are seen but do not cause symptoms Venereal warts are foul smelling and annoying to the patient Rectal ulceration is associated with tenesmus and mucopurulent blood stained discharge

Treatment—The treatment is antisyphilitic treatment plus dusting powders of calomel and bismuth locally *Penicillin* (aqueous) in doses of 50 000 units every 2 hours day and night for a total dosage of 5 000 000 units

TERTIARY SYPHILIS

Occurrence—The occurrence of tertiary syphilis which is rather rare is in the form of either a gumma an ulceration a ring stricture or a patulous anus (cord anus) Onset these tertiary lesions occur within five years of the initial lesion

Symptoms and Anorectal Findings—A gumma causes no symptoms If ulcers are present a mucopurulent discharge is noted Anorectal stricture which is usually a healed gumma presents symptoms of constipation and obstipation but no discharge this differentiates it from lymphogranuloma venereum strictures which are associated with an endless discharge

Patulous anus or cord anus is the result of degenerative changes in

the posterior nerve roots of the segments supplying the sphincter muscles The general impression that strictures of the rectum are caused by syphilis has been disproved with the advent of the Frei test

Diagnosis—A history of former syphilis, a positive Wassermann, and biopsy establish the diagnosis

Differential Diagnosis—Luetic anus and rectum should be differentiated from tuberculosis carcinoma, amebic granuloma bacillary granuloma and hyperplastic tuberculosis The biopsy, history, and proctoscopy make the diagnosis

Treatment—The above antisyphilitic treatment, plus rectal dilatation to enlarge the stricture opening Specific local treatment of lesions such as abscess, fistula and fissure should be administered Excision of condylomas and cauterization of their base with cautery or fuming nitric acid is helpful

Prognosis—The prognosis is good in both congenital and acquired syphilis if treatment is instituted early In patulous anus there is no cure

CHANCROID (SOFT CHANCRE)

Etiology—The Haemophilus ducrey is the causative agent and is acquired in one of the following three ways (1) Secondary to vulvovaginal chancroidal discharge (2) by contact with the penis during sexual intercourse, (3) by rectal intercourse

Site of Ulcer—The chancroid ulcer is most commonly found at the anal verge or in the anal canal It is rarely found in the rectum

Frequency of Occurrence—This condition is relatively rare in the anal area but it does occur especially in perverts the colored race and persons from lower strata In the First World War as well as in the last conflict many cases of chancroid were seen in the army and navy hospitals

Pathology—Chancroids start about 3 days after exposure as a small pustule surrounded by an area of redness which breaks down forming an ulcer They seldom progress above the pectinate line In the anus they first appear singly as discharging fissures and tend to spread around the entire anal canal Mixed infections of both luetic chancres and chancroids are not uncommon

Symptoms—The patient usually complains of pain which varies from anal discomfort to severe pain A purulent discharge is usually present, and a suppurating inguinal adenitis is not uncommon

Diagnosis—The diagnosis is made by a positive Ito Reenstierna skin test after Wassermann Frei tests Darkfield studies and search for Donovan Bodies have been found negative

Complications—Abscess fistula, and occasionally condylomas and cellulitis may complicate the picture

Treatment—Bland *diet*, mild *laxatives* and dusting powders of calomel and zinc stearate equal parts are helpful If much pain is com plained of Surfacaine ointment can be applied Dessication of the ulcer with the *high frequency current* is often helpful Superficial lesions heal with sulfanilamide powder Stubborn cases require both oral and local treatment

Suppositories—Cod liver oil suppositories several times daily are helpful

Antibiotics—Gantrisin 2 tab 4 times a day for 10 days

Sulfadiazine—2 Gm for the initial dose and 1 Gm every 6 hours for 7 days

Sulfathiazole—1 Gm 4 times daily for 5 days followed by 7½ gr 4 times daily for 10 days

Streptomycin—In resistant cases 5 to 20 Gm total dosage in divided doses

Where *suppurating inguinal glands* complicate the picture excellent results are obtained by painting the gland with 3 5 per cent tincture of iodine in alcohol followed by the insertion of a small cannula into the point of maximum softening the pus is aspirated with the aid of manual pressure and 300 000 units of penicillin is instilled into the cavity through the cannula left in situ

LYMPHOGRANULOMA VENEREUM
(RECTAL STRICTURE AND PRESTRICTURE)

Lymphopathia venereum is often referred to by other synonyms such as Frei s disease strumous bubo Durand Nicholas Favre s disease the fourth venereal disease the sixth venereal disease and lymphogranu loma inguinale It is a venereal disease caused by a filterable virus Frei in 1925 introduced the Frei skin test which was a milestone of great importance This disease spreads by way of the lymph channels and the lymph glands and affects both sexes especially the female in the formation of a periproctitis a prestricture state and later a rectal stricture

ETIOLOGY

In a three year study of 115 Frei positive rectal stricture cases at the Cook County Hospital Gastro Intestinal Rectal Clinic, the following facts were observed and revealed by the author and his associates

Predisposing Causes—Age The most common age group was found to be between 18 and 35, during the period of greatest sexual activity Race 90 per cent were Negroes, 9 per cent were whites and 1 per cent



FIG 98 LYMPHOPATHIA VENEREUM RECTAL STRICTURE REMOVED SURGICALLY Note (*A*) anal skin (*B*) narrow lumen (*C*) the markedly thickened periproctitic wall and (*D*) the dilated ulcerated gut above

were Mexicans Sex 89 per cent were females, 11 per cent were males Venereal factor Most patients were quite promiscuous sexually

Direct Cause —The direct cause is an ultramicroscopic virus which seems to have a predilection for the lymphatics in the area of the infection

Clinical Course in the Female —The primary lesion is on the external genitalia or cervix The lymphatic drainage spreads by way of the lymph channels which drain this region, and to the glands of Gerota which surround the rectum The following are the types of clinical lesions produced by the variations in distribution of the lymphatic by ways which drain the genitalia (1) prestricture granulomatous proctitis (2) rectal stricture per se (fig 98), (3) rectal stricture with 'cockscomb anal skin tags (4) perianal watering pot' granuloma with sinuses and fistulas (5) elephantiasis of the vulva (*esthiomene*) with or without a stricture (genitoanorectal syndrome) (fig 99), (6) a chronic lymphogranulomatous parametritis or pelvic cellulitis may or may not be present with or without a rectal stricture (7) stenosis not only of the rectum but also of the lower colon (8) and finally any and all combinations of the above may be present in any one patient

Clinical Course in the Male —Since the lymph drainage in the male



FIG 99 LYMPHOPATHIA VENEREUM ELEPHANTIASIS OF THE VULVA (ESTHIOMENE) If a stricture is also present this condition is referred to as genito anorectal syndrome

is from the penis to the lymph glands of the inguinal region the male usually develops the inguinal bubo The exact explanation of the rectal stricture in the male is as yet not fully understood However pederasty and retrograde passage of the virus from the superficial inguinal glands are the theoretical explanations of the comparatively rare development of lymphopathia venereum seen in the male

PATHOLOGY

Prestricture Stage —The early stages of lymphopathia venereum stricture of the rectum as seen in the Cook County Rectal Clinic by us revealed on proctoscopic examination mucosal erosions and purple granulomatous nodules which bled easily on instrumentation Several such cases were seen by us which were definitely established as the prestricture stage

Stricture Stage —As a result of continued inflammatory processes and contraction of cicatricial tissue the bowel lumen slowly diminishes in caliber and a stricture results (fig 98)

Proctologic examination reveals one of the perianal manifestations described under clinical course in the female The anal opening is usually patulous and leads to a smooth fibrous conelike opening which tapers up to the stricture entrance 3 to 8 cm above the anal verge The stricture proper is tubular with irregular constrictions and pockets The walls are irregular and fibrous with occasional granular nodules The mucosa is reddened and presents small ill defined pink red scattered irregular areas of ulceration A blood tinged mucopurulent ' cherry juice discharge exudes from the strictured lumen The stricture wall frequently contains sinuses which lead to small abscesses and are partially responsible for the intractable chronic discharge (fig 100)

Biopsies of these granulomas as well as specimens from the stricture wall present a picture of chronic inflammation with diffuse infiltration of lymphocytes epitheliod cells plasma cells and polymorphonuclear leukocytes and an occasional giant cell

SYMPTOMS

In spite of the extensive pathology patients maintain a surprisingly good state of health The common complaints are progressive consti



Fig 100 Lymphopathia Venereum Stricture

X ray shows a tubular stricture with lateral sinuses leading to small abscess cavities in the thickened fibrotic inflammatory wall of the rectum *A* is the proximal limit of the stricture *B* small abscess cavity *C* sinuses leading to lumen of stricture *D* anal opening leading to the distal portion of the stricture at *E*

pation cherry juice rectal discharge straining and discomfort at stool lower abdominal discomfort bloating and feeling of fullness

DIAGNOSIS

This is based on the history of the above symptoms, usually in a young colored female Proctologic findings are of a stricture The Frei test establishes the diagnosis even though a positive Wassermann is also present in a small percentage of cases Blood count shows a secondary anemia and a white count of from 6,000 to 9 000 with the differential showing increased lymphocytes Biopsies show chronic inflammation as previously described X ray shows a tubular stricture with lateral sinuses leading to small abscess cavities in the thickened fibrotic, inflammatory wall of the rectum (fig 100)

DIFFERENTIAL DIAGNOSIS

The following conditions should be considered in the differential diagnosis Scirrhous carcinoma is ruled out by a biopsy A postoperative anal stenosis is ruled out by a history of previous anorectal operation and the absence of a cherry juice discharge The Frei test is negative Ulcerative colitis stricture is ruled out by a negative Frei test and a history of chronic ulcerative colitis

TREATMENT

Up to date, no existing specific treatment is available However much can be done to relieve the patients symptomatically

1 *General Measures*—The following measures have proven to be of value in the control of these cases A bland diet is most efficacious Mineral oil and occasional saline laxatives may be administered if the mineral oil proves ineffective Any vitamins and iron tonic is helpful to improve the patient s general condition

2 *Finger Dilatation*—Local finger dilatations weekly are most necessary and helpful and least dangerous Bougies are not recommended because of the danger of perforation

3 *Vaccine*—Lymphogranuloma venereum vaccine has proven more helpful in the inguinal bubo stage than in the anorectal stricture stage However since we have no specific treatment it is worthy of trial Frei antigen 0 1 cc is given every 5 days the dose being increased by 0 1 cc until 1 cc is given

4 *Chemotherapy*—We have found sulfathiazole the most satisfactory of the sulfonamides There are practically no toxic reactions or side

effects and it can be given for long periods of time It is not a specific and probably aids by keeping down the secondary invaders The dose is 4 tablets 4 times daily for a period of a month A week of rest is advisable after which the course is repeated

5 *Antibiotic Therapy*—Antibiotics are most helpful in the prestricture stage associated with an inflammatory proctitis However, some benefit can be obtained in the fibrous stricture stage This has been most apparent in the reduction of pus and blood

We have used with benefit *Chloromycetin* 500 *mg* every 6 hours for 2 weeks This can be repeated from time to time with periods of rest between courses *Aureomycin* 500 *mg* every 6 hours for 7 to 10 days has been beneficial *Terramycin* 500 *mg* every 6 hours for 2 weeks We have our patients take milk buttermilk, and concentrated vitamins when taking antibiotics

6 *Surgery*—The following surgical procedures are performed when necessary fistulectomy removal of skin tags stricturotomy excision of granulomatous perianal masses excision of elephantitic vulvas and colostomy for obstruction In some cases complete resection of the rectum following colostomy produces a cure

Chapter 27

MELANOSIS COLI

MELANOSIS is a mahogany like discoloration of the mucosa of the rectum and colon referred to as crocodile skin, toad back, snake skin etc.

ETIOLOGY

Predisposing Causes.—Mostly in adults. The occurrence is rather rare. Pick reported 1 per cent of cases, Backus, Willard, and Bank 1.7 per cent of cases, Stewart and Heckman 11.2 per cent of cases, Heuschen and Bergstrand 24.5 per cent of cases. In approximately thirty years of private and clinical practice I have seen it in less than 1 per cent of my cases. This disease may occur in any race. Constipation especially proctostasis, is considered a predisposing cause. Those laxatives which are anthracene derivatives are considered to be the all important male factors.

Active Causes (Theories).—1.—Drugs. The drugs believed to be responsible are those containing a resinous pigment material especially the anthracene group (cascara, aloes, rhubarb, senna or fragula). 2.—Intestinal stasis especially associated with proctostasis (rectal constipation). 3.—Subinfection of the intestinal wall. 4.—Disturbance of protein metabolism which may be due to an excess production of protein waste products. Putrefaction and decomposition results in catabolic products such as indol and skatol which are absorbed into the mucosa and changed into true endogenic melanin presumably by the action of an oxidizing ferment tyrosinase in the connective tissue cells (Obenderfer, Lubasch and Synnott).

PATHOLOGY

Histopathology.—The epithelial cells are pigment free but the stroma of the mucosa contains most of the pigment within large mononuclear cells of uncertain nature. Rarely the mesocolic lymph nodes contain gross pigment.

Associated Pathology.—Melanosis coli was found in 1 out of 100 of Cotton's surgically removed colons reported by Synnott. These mel-

anotic colons were excised along with the other 396 because they were believed to be foci of infection in psychopathic patients

Pick s study of melanosis coli considered to be the best observations on this subject describes no secondary inflammatory changes, ulcerations scars or catarrhal states of proliferation

Symptoms

There are usually none or there may be the usual symptoms of intestinal stasis, such as headache vasomotor disturbances dermographia nervousness lack of endurance, mental and physical sluggishness etc

Diagnosis

The pigmentation is revealed by proctoscopy and is usually discovered accidentally during a routine examination The mucosa ranges in color from mahogany to purplish black usually in the pattern of crocodile skin (fig 101) The entire rectum and colon may be involved or there may be only segments The pigment is most dense in the cecum appendix ascending colon and rectum

Differential Diagnosis

Synnott presents the following rectal and colon discolorations which should be kept in mind when considering melanosis coli hematic discolorations of severe acute or chronic inflammations injected congested or granular appearance of the mucosa seen in certain cases of proctitis and colitis exogenous pigmentation sometimes following chronic intoxication from silver mercury or bismuth trophic patchy chocolate-colored pigmentation of tabes dorsalis occasionally observed in the lower rectum (Kallet) brownish pseudopigmentation of certain old cases of coprostasis black di coloration which as Lynch has pointed out results from the action of sulfurated hydrogen on the feces freckled pigmentation occasionally seen in the rectum probably due to bile absorption

Treatment

Although we have never noted any improvement or aggravation of symptoms following any or all types of treatment the following measures may be tried discontinuation of the offending anthracene cathar

tics normal saline enemas daily, using 2 teaspoons of salt to a quart of water changing of the intestinal flora, using as much as 2 ounces of colloidal kaolin a day in divided doses, correction of constipation by the administration of gum laxatives

PROGNOSIS

Battle and Lynch state that the pigmentation disappears after removal of the drug plus establishment of intestinal hygiene The writer has observed several of such cases over a period of five years and has noted no improvement or aggravation in appearance or symptoms

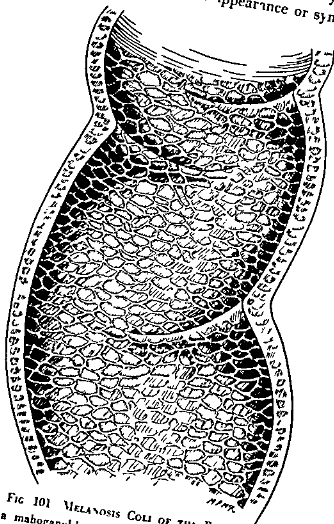


FIG 101 MELANOSIS COLI OF THE RECTUM

Melanosis Coli is a mahoganylike discoloration of the muc a of the rectum and colon referred to as "crocodile skin" "snake skin" etc. The cause is theoretical

Chapter 28 BENIGN AND RARE TUMORS (OTHER THAN POLYPS)

Benign tumors of the large bowel are being found with increasing frequency as diagnostic methods improve and examination of the colon and rectum by proctoscopic and fluoroscopic examination becomes more widely adopted The chief importance of these so-called benign tumors lies in the fact that occasionally they contain some malignant cells It behooves us therefore to diagnose recto-sigmoidal tumors in their early stages and to eradicate them as soon as is feasible A laboratory examination should be made of all removed specimens to rule out malignant cells

These benign tumors consist of cells and intercellular substances arranged typically and systematically as tissues demonstrating normal relationships but functionally inert They are usually encapsulated and have a tendency to grow slowly Recurrence is rare and most of them do not metastasize

Benign Tumors Seen Occasionally

Warts are found about the anal region in two forms

Condyloma Accuminata which are seen as multiple pointed tufted projections of various length Pathologically, they represent an excessive proliferation of epithelium and connective tissue and are very vascular These condylomas are frequently seen just within the anal verge Treatment consists of destruction of the lesion preferably by excision with scissors and electro dessication of the base There have been reports of treatment using podophyllin but our experience with this drug has not been satisfactory

Condyloma Latum is a moist syphiloderm It consists of broad moist flat papulae which frequently become ulcerated and macerated Diagnosis is based on appearance of the lesions plus positive dark field examination of the secretion from the lesions Treatment consists of anti luetic therapy

Hypertrophied Papillae are toothlike projections at the pectinate line,

usually associated with cryptitis They are sensitive in contrast to polyps, which are insensitive and they are covered by transitional or squamous epithelium in contrast to polyps which are covered by columnar epithelium (see fig 39) Treatment consists of excising the papillae and their associated crypts (See chapter 8 on Cryptitis and Papillitis)

Granulomas—Granulomatous lesions of a benign nature are occasionally found in the rectum and colon and are frequently difficult to differentiate from carcinoma They may be due to tuberculosis, amebiasis, or a foreign body X ray of the colon may reveal this lesion and chest x ray should be done to establish the presence or absence of pulmonary tuberculosis Treatment is confined to the specific cause Surgery plus anti tubercular or anti amebic treatment for the granuloma and surgery for the foreign body is curative

Sebaceous Cysts are found about the perianal area as small swellings resembling blackheads, which can be erupted by pressure These glandular swellings can also become much larger and need enucleation surgically

Lipoma may be sessile or pedunculated, may protrude into the lumen of the bowel, and may be lobulated rounded oval or pyriform or may be found below the mucosa Surgical removal is curative

Benign Lymphomas—These are benign asymptomatic rectal tumors If small they can be dessicated If large they should be excised

Endometriosis usually extends from the rectovaginal septum encircles the rectum and tends to cause stenosis without mucosal involvement, or attaches itself to the sigmoid from the cul de sac There is progressive constipation dull aching pain, backache and lower left quadrant pain aggravated during the menstrual period The rectal mucosa is not involved The diagnosis is established by visualization through a sigmoidoscope and by pelvic operation which reveals endometriosis Treatment consists of androgen therapy in the mild cases, and excision of involved areas with panhysterectomy in severe cases

Papilloma or Villous Tumor—This has been termed papillary tumor villous carcinoma villous polypus, papillary polypus and papillary adenoma

Papillomas are usually sessile vary in size originate from the partitions between the crypts of Lieberkuhn of the intestinal mucosa, and tend to undergo malignant degeneration They bleed easily secrete a viscid mucus and consist of a larger number of villi or fingerlike projections The surface is spongelike or cauliflowerlike in appearance

The treatment is early excision Resection of the rectum is rarely necessary

Carcinoid (argentiffinoma) of the rectum is usually seen as a benign submucosal sessile lesion in the rectum which is symptomless Malignant degeneration with meta tasis may occur Treatment consists of early adequate excision of the lesion before infiltration with metastasis has occurred Treatment of the infiltrative type of lesion is the same as for any malignancy of the rectum

Myoma—True myomas or pure muscle tumors are uncommon Most designated myomas contain varying amounts of muscle glandular fibrous and connective tissue and have been described as myoma myofibroma, adenomyoma and fibromyoma Treatment is surgical excision

Fibroma arises from the fibrous tissue of the submucous coats of varying sizes and microscopically may be true fibroma or mixtures such as adenofibroma myxofibroma and myofibroma Treatment is surgical excision

Angioma is rare in occurrence and varies in size from a small nevus to a large pedunculated tumor Complications ulcerations with serious hemorrhage or obstruction may occur Treatment should be conserva tive and directed toward the control of bleeding with the aid of injecting sclerosing solutions such as 5% phenol in oil or quinine and urea X ray radium and carbon dioxide may be used where indicated If conservative treatment fails and surgery is necessary a temporary pre liminary colostomy is advisable

Sacro Coccygeal Teratomas are tumors which consist of all three germinal layers and are generally found in early life Sacro-coccygeal growths have been classified as dermoids teratomas fetal parasites teratoids etc but are better classified as teratomas They may pursue one of two courses i e they may remain benign and well encapsulated or one of the germinal layers may undergo malignant degeneration with all the findings of invasion and metastasis Treatment consists of early total excision of the mass

Hydradenoma—Rare benign adenomas of the apocrine sweat glands They are well encapsulated intracystic papillary tumors They may be mistaken for carcinoma They are lined by a single layer of columnar epithelium which has a tendency towards stratification Treatment is excision

Paraffinomas (oleomas) are rare localized encapsulated submuc-

swellings, the result of paraffin base solutions erroneously used to inject hemorrhoids No treatment is necessary

VERY RARE BENIGN TUMORS

1 *Glioma*—This arises from the spinal cord in the sacro-coccygeal region connected with the dura It has been found in the perirectal structures

2 *Endothelioma*—This is similar in origin to and clinically characteristic of gliomas Invasion of the spinal cord is early in its onset giving rise to sacral and coccygeal pain With impingement of the sacral and lumbar plexuses, sphincteric disturbances and paresthesia in the perianal and vesical regions occur

3 *Dermoids*—True dermoids may arise in the rectal wall producing symptoms relatively early

4 *Teratoma*—Although there is no sharp line of demarcation between dermoids and teratomas teratomas contain visceral fragments and tissue

5 *Chordoblastoma*—This may occur at any point along the spinal column with those impinging on the rectum originating at the sacro coccygeal juncture

Chapter 29

POLYPS (BENIGN AND MALIGNANT)

Polyps of the large bowel are being found with increased frequency as diagnostic methods improve and examination of the colon and rectum by proctoscopic and fluoroscopic examination becomes more widely adapted

Approximately 60 per cent of all cancers of the large bowel are found in the rectum and rectosigmoid area Of all the sites of malignancy in the large bowel carcinoma of rectum is the easiest to diagnose The doctor who first sees the patient—generally the family doctor—is the one who has the earliest opportunity to recognize the symptoms of malignancy There are no typical symptoms of polyps of the rectum since most may occur with other rectal lesions Since it is also a fact that about 80 per cent of the polyps are found in the first 10 inches of the rectosigmoid accessable with the ordinary sigmoidoscope it is the sincere feeling of the writers that all patients coming to a physician for a physical examination should be proctoscoped and sigmoidoscoped

These so-called benign tumors are important primarily because many of them frequently contain malignant cells Quinn Lauda Paulsen Buie and others believe that 10 to 50 per cent of polyps are forerunners of carcinoma of the rectum It is imperative therefore that we diagnose adenomas in their early stages and eradicate them as soon as is practicable To eliminate the possibility of malignant cells a laboratory examination should be made of all removed specimens

Etiology and Incidence

Adenomatous polyps of the rectosigmoid are true tumors and their etiology is as yet unknown as evidenced by the multiplicity of theories such as allergy hyperplasia of the mucosa infection irritation heredity and many others The incidence of polyps varies according to the literature and the discrepancy in these figures is apparently dependent upon the method of study as well as the source of the material i e whether in a general practice a proctologic practice cancer detection center by x ray or by autopsy figures Nevertheless a short review of some statistics should give ample evidence of the comparatively high incidence of polyps

In cancer detection centers the figures range from 1.6 to 8.8 per cent as noted

Ortmeyer of Women's and Children Hospital Cancer Prevention Clinic	1.6%
Christianson of Cancer Detection Center, University of Minn.	1.6%
Yater Clinic, Washington, D.C.	8.8%
Goldman, Kolow, Altman, Rosenstein, Levy	2.3%
Kips Bay Yorkville Cancer Detection Center	6.4%
Strang Cancer Prevention Clinics	6.4%
Portes and Majarakis	7.9%

Autopsy figures range from 3.37 to 21.10 per cent as indicated

Lawrence	7000 autopsies	3.37%
Sussman	1100 autopsies	6.00%
Hellwig	1460 autopsies	9.50%
Swinton and Haug	1813 autopsies	7.00%
Klemperer		21.00%
Feyrter	1800 autopsies	21.10%

Figures in proctologic practices range from 1.2 to 7.4% as indicated. In the proctologic practice of two of us (M.G.S. & L.M.) the figures revealed 7.4% over a period of 5 years.

Martin	4.4%
Buie	2.5%
Thiele	1.2%
Brust	5.0%
Phillips	5.0%
Colbert	2.3%
Castro Ault Smith	2.1%
Greer	3.0%
Spiesman and Malow	7.4%

The location of polyps is of great importance. It is the consensus of opinion and *it is shown by statistics that the majority* of colo rectal polyps are found within the reach of the 10" sigmoidoscope.

Males seem to be more frequently beset by polyps than females in the ratio of 3 to 2 and when one finds one rectal polyp a diligent search should be made for others inasmuch as multiple polyps are not infrequent.

Some statistics and the corresponding impressions of various surgeons and proctologists relative to the malignancy index of these polyp are very enlightening. Bacon and Broad report 1% malignancy found

in their series of polyps Christianson reports 7.0% Castro, Ault, and Smith 15% Bacon also reports that in the cases of proven rectosigmoidal malignancies polyps were found in 31.2% of these cases and of these polyps, 6 to 14% were malignant Dukes believes that all rectal polyps become malignant Fitzgibbon believes that all cancers of the bowel arise from polyps Sawyer contends that all polyps of the rectum are potentially malignant and that the probability of carcinoma increases with the number of polyps present In support of this last statement is the almost certain development of malignancy in cases of polyposis of the colon

Biopsies are routinely taken on all polyps except those under 5 mm but they should not be performed unless the necessary equipment is on hand to control hemorrhage or aspirate smoke and blood from the area of bleeding Hemorrhage from these polyps following biopsy can be quite formidable unless the operator is properly prepared

A point that should need no repetition but deserves it nevertheless is that those patients complaining of rectal bleeding and having internal hemorrhoids should be sigmoidoscoped before any hemorrhoidectomy is performed Also if a solitary polyp is present a search for other growths above this polyp is essential

It is our practice to order a contrast barium enema study on all patients having one polyp to rule out the possibility of colon polyps higher up (fig 102) This examination as performed in many laboratories or hospitals will fail to reveal colonic polyps especially in the sigmoid hepatic and splenic flextures unless a contrast barium study with lateral and oblique views of the sigmoid hepatic and splenic flexures are included

Routine proctosigmoidoscopy is urgently recommended for all persons over 35 years of age because of the increased incidence of colon polyps above that age The following figures of polyps relative to age are from the Strang Cancer Prevention Clinic

TABLE 1

AGE (YEARS)	NUMBER OF POLYPS	PER CENT
13	1	0.2
20 to 29	4	0.8
30 to 39	47	9
40 to 49	177	37
50 to 59	178	38
60 to 69	61	12
70 to 79	10	2
80	1	0.2

CLASSIFICATION

Clinical Classification (figs 102 103)

1 Polyp—single tumor
2 Polyposis—several polyps
3 Polypoidosis—practically the entire rectal and colonic mucosa is covered with polyps
4 Psuedopolypoidosis—ragged polypoid excrescences found associated with chronic ulcerative colitis bacillary dysentery, and amebic ulcerative colitis
5 Pedunculated and Sessile

Pathological Classification

There is much disagreement as to the proper classification of rectal polyps This is best exemplified by the experience of Marie Ortmeyer of Chicago who sent 19 biopsied polyps to three pathologists for diagnosis All three agreed on the diagnosis of only three of those biopsies The differences of opinion were probably due only to variation in terminology and differences in the criterion of malignancy Thus what one pathologist will call carcinoma *in situ* preinvasive another will call suspicious for carcinoma, another will call it benign polyp

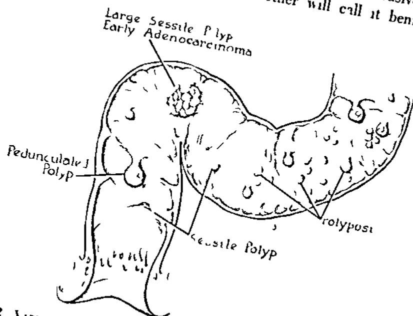


FIG 102 VARIOUS TYPES OF POLYPS SEEN IN RECTUM SIGMOID AND COLON

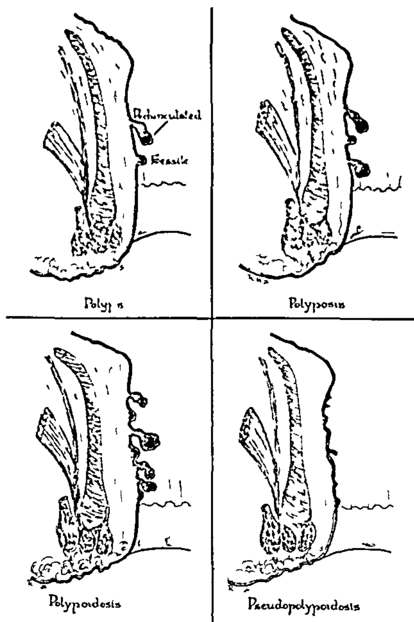


Fig 103 Schematic Classification of Polyps



FIG 106 POLYP WITH CARCINOMA IN SITU

Note the darker taining cytoplasm the piling up of nuclei in two or more rows (arrow) and the larger and more pleophormic nuclei This group has also been called "uspicious for cancer and polyp with atypical changes"



FIG 107 POLYP WITH CARCINOMA IN SITU

Note normal gland (1) along the malignant glands (2) in high power magnification

the polyp is the criterion for #3 in our classification i e *polyp with infiltrating adenocarcinoma* Thus our suggested classification of rectal polyps based on Schiller's observations is as follows

CLASSIFICATION OF POLYPS (AFTER SCHILLER)

1 *Benign Polyp*
  a Resting Polyp
  b Actively Proliferating Polyp
2 *Polyp with Carcinoma In Situ*
3 *Polyp with Infiltrating Adenocarcinoma*

That all polyps are potentially malignant is well borne out in current literature It is not unusual to see numerous polyps in association with frank adenocarcinoma of the colon or rectum A study of these polyps usually shows the entire pathogenesis of large bowel carcinoma Some of the polyps will be benign resting type or actively proliferating while some will show carcinoma *in situ* and some will show infiltrating adenocarcinoma in the base of the polyp It is for this reason that multiple carcinomas of the rectum and colon are not infrequent Intra epithelial carcinomatous changes in a polyp may be confined to one portion of a polyp Frequently punch biopsy of a polyp may not



FIG 103 POLYP WITH INFILTRATING ADENOCARCINOMA

Glandular elements can be made out as well as broken-down glands (1) and invasion by carcinoma cells (2)

include a malignant portion, and it is for this reason that a simple punch biopsy may be misleading and that the entire polyp should be removed for microscopic study

SYMPTOMS

Most patients with rectosigmoidal polyps have no complaints indicative of their presence although bleeding is the most common complaint occuring in 50% (according to Swinton and Warren) and 8 to 50% (Strang Clinic) In a series of 301 cases reported by Bacon and Broad 63% offered no complaints referable to their growths Protrusion of a mass through the anus is sometimes noted, as is also a complaint of a feeling of fullness or pressure in the rectum In our experience rectal bleeding caused by polyps occurs only occasionally The greatest percentage of polyps was found on routine sigmoidoscopy

DIAGNOSIS

The diagnosis of rectal polyps is based primarily upon sigmoidoscopic examinations although digital examination and x ray study should not be omitted As evidenced by the statistics quoted and paucity of symptoms in these cases, it becomes mandatory for every physician to look for these growths by routine sigmoidoscopy It is a relatively safe and simple procedure but only too often omitted from a general examination

TREATMENT OF RECTOSIGMOIDAL POLYPS

The treatment of polyps is usually not difficult, but in questionable cases it is best determined when the examiner has had years of experience with this type of work To avoid confusion the authors will refer to the types of high frequency currents commonly used for the removal of polyps in the following manner The word fulguration, which refers to either the single or the double type of currents will not be used hereafter instead when discussing the single pole sparking current we will refer to *dessication* and when discussing the two pole current we will refer to *coagulation*

The biopsy punch followed by dessication is the instrument and current most commonly used (fig 109) For low lying accessible lesions excision and suture is preferred while lesions beyond the reach of the sigmoidoscope require removal through a colotomy incision If the

polyp has invaded the wall of the colon a resection of a portion of the colon is indicated Multiple polyps are treated the same as solitary ones—by the biopsy punch and dessication method —while the familial type of polyposis which covers the entire rectum and colon should have only one form of therapy namely colectomy with ileorectostomy followed later by dessication of the rectal polyps

For the inexperienced operator the dessication current for small sessile polyps is the safest because the current does not penetrate deeply (fig 110) In the hands of an experienced operator who has a good working knowledge of the high frequency machine and depth of pene

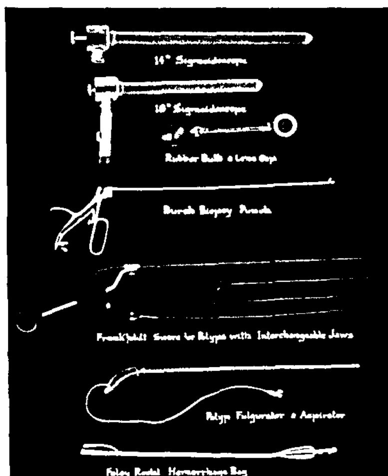


Fig 109 Proctologic Instruments

Sigmoidoscopes biopsy punch Frankfeldt polyp fulgurator and coagulator polyp fulgurator and aspirator and Foley rectal hemorrhage bag

tration of the ball tip being used, the two pole diathermy current is satisfactory for lesions below the peritoneum

SESSILE POLYPS ABOVE THE PERITONEAL REFLECTION

For sessile polyps less than 1 cm in diameter above the peritoneal reflection our usual routine is to remove most of the polyp with the biopsy punch and dessicate the base and surrounding mucosa One should have electrodes with suction attachments capable not only of removing smoke to promote better visibility and avoid small gas explosions but also for removing blood in case of extensive hemorrhage

For sessile polyps more than 1 cm in diameter above the peritoneal reflection, carcinoma with invasion should be suspected, especially if the least degree of firmness exists The problem becomes a precarious one requiring extensive judgment and experience Because it is difficult to reach and examine the polyp, one has to depend upon vision sigmoidoscopic examination biopsy, and the "Pap" smear to arrive at a proper decision If fixation and induration is felt when the end of the

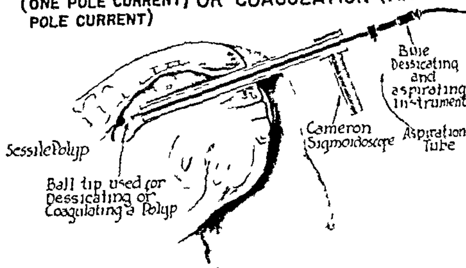


FIG 110 DESSICATION AND ELECTROCOAGULATION OF RECTOSIGMOIDAL POLYPS

sigmoidoscope is pressed against an ulcerated large bleeding polyp and the Papanicolaou stain and biopsy specimens show malignant degeneration the patient should have an exploration and resection of a portion of the colon Careful search should be made for metastatic glands and a thorough search for more existing polyps

PEDUNCULATED POLYPS ABOVE THE PERITONEAL REFLECTION

Although many men describe the snare method of coagulation for polyps personal conversation with many of these men reveals a fact that we have always known the snare method is fraught with danger Pedicles of polyps frequently carry large arteries Unintentional undue traction may tear off a pedicle resulting in excessive hemorrhage at a point that is very difficult to expose and to reach Excessive coagulation to control hemorrhage may result in slough and perforation of the sigmoid colon

Because of traction by the polyp on the sigmoid wall over a long period of time the pedicle may be a part of the sigmoid wall It is quite obvious that removing such a pedicle with a snare would result in a perforation of the bowel wall with ensuing peritonitis Even omentum and small intestine have been reported in the pedicles of pedunculated polyps Using the snare method in such cases may be disastrous

Instead of the snare we have found that the Frankfeldt double cup electrode using the diathermy (two pole) current and removing the polyp piecemeal by the fractional method is the safest for the greatest number of men A portion of the polyp is grasped by the cups and coagulated one or more pieces being done at one sitting This can be repeated two or three times week When only the pedicle remains care must be taken not to coagulate too deeply at the base of the pedicle to avoid slough and perforation Too deep a treatment of the base of the pedicle may also result in a long lasting punched out ulcer When the pedicle base is reached it is safer to use the dessicating current (one pole) and repeat, if necessary to avoid the above possible complications Again it must be repeated one must have gas and blood suction equipment on hand at all times to remove explosive gases in the sigmoid to improve visibility and to control possible hemorrhage If hemorrhage should occur a good combination suction and dessication (one pole) electrode could clear the field of blood and smoke—thus exposing the bleeding vessel—and then seal it with sparking dessication (fig 109)

SESSILE POLYPS BELOW THE PERITONEAL REFLECTION

Sessile polyps less than 1 cm in diameter below the peritoneal reflection can easily be *removed with a biopsy punch followed by dessication* of the base and *surrounding mucosa*

Polyps larger than 1 cm in diameter which are not ulcerated do not bleed easily are *not indurated and fixed, and are accessible to the* operator They should be excised in toto with a collar of basal mucosa The exposed wound can then be closed with a suture

Polyps more than 1 cm in diameter below the peritoneal reflection not accessible to excision and *showing* ulceration, *free bleeding fixation induration*, and positive Papanicolaou stain and biopsy *findings are the real problem cases To remove by fractional coagulation or to* do a complete abdominoperineal resection becomes the serious question to be decided These are the cases that tax the conscience of the proctologist or surgeon We have always tried to place *our elves in the* position of the patient and our decisions have always been ba ed on what we would want done for ourselves if we had similar lesions The following is our usual conclusion in such cases If a polyp with the *above findings is not too large and is located on the posterior* wall below the *peritoneal reflection, we* coagulate all of the lesion as well as a good size collar around *the base This type of case should be* observed *once monthly for years* since a recurrence may require radical surgery *If local recurrence does occur, and if no invasion is found* on pathological examination further dessication may still be indicated but it is associated with heavy *responsibility* The experience and judgment of the proctologist will have to determine the course of treatment in these cases If local recurrence shows *invasion* radical resection is *the treatment of choice*

For polyps on the anterior wall of the rectum the decision for treatment *is associated with an even greater* responsibility because of the close proximity of the bladder, uterus, seminal vehicles and prostate gland Here again, one s personal *experience with this type of lesion* will determine the type of treatment to institute

Since villous tumors are rarely *found above the peritoneal reflection* we have had good results with excision en ma e Since *a* certain per centage of these tumors are malignant at their *ba e, the postoperative* periodic observations are most important Frequently small residual areas have to be dessicated *or* coagulated In our experience excision and *suturing* of the base has given consistently good results In one

case we found an adenocarcinoma of the rectosigmoid about 4 cm above an excised villous tumor Treatment for this patient was followed up by an abdominoperineal resection

Pedunculated Polyps Below the Peritoneal Reflection

If pedunculated polyps below the peritoneal reflection are accessible to the operator they are best removed by excision with an accompanying collar of rectal mucosa The wound is sutured by the pursestring method If not easily reached then the Frankfeld cup fractional method described above should be instituted

Since some pedunculated polyps present areas of malignant change the question arises Should one remove the entire rectum in such cases or use coagulation locally? Our experience over a period of twenty five years has taught us that when palpation reveals a freely movable soft nonindurated, pedunculated polyp and histologic studies disclose malignant change confined to a single area not involving the stalk or base local excision dessication or coagulation is entirely satisfactory Rankin and Johnson have recently reported similar experiences We have called these polyps histologically malignant and clinically benign We must keep in mind however the possibility of a malignant change in a polyp being associated with established metastasis in regional lymph nodes

Considerations Following Polyp Therapy

One should be on the lookout for perforation or hemorrhage 5 to 10 days following the use of coagulation Patients should not be permitted to work or to lift heavy objects for at least two weeks after such treatment In questionable polyp cases 8 to 10 weeks should be allowed to transpire following coagulation before one decides about the results accomplished If after such a period the area appears healed becomes mobile and pliable and adopts the appearance of the adjacent tissue the result will usually be satisfactory However if after such a period the area is indurated fixed friable and the biopsy shows malignant tissue radical surgery should be instituted besides further dessication or coagulation produces perirectal inflammation and adhesions to the vaginal wall and other pelvic structures making radical surgery very difficult

Any time after six weeks any suspicious tissue should be biopsied and the case again reviewed for further consideration

Chapter 30 MALIGNANT TUMORS

THE United States Bureau of the Census reveals the fact that cancer is on the increase Carcinomas of the rectum and the colon constitute about 12 per cent of all the cancers of the body Patients are still reaching the proctologist with carcinoma of the anorectum following previous treatment for hemorrhoids, colitis, and operations for hemorrhoids Rectal suppositories are still being dispensed to patients by the physician and druggist without a proctoscopic examination The time is not far off when treatment for anorectocolonic bleeding or diarrhea without previous proctoscopic sigmoidoscopic, and stool examination will be considered gross negligence

Etiology

PREDISPOSING CAUSES

Race —Yeoman's statistics show that carcinoma is universal although the Negro is 6 1% of total

Age —Carcinomas may occur from the early age of 3 up to extreme old age The average age is about 56 It is most common between the ages of 10 and 70

Sex —Carcinoma of the anorectocolon is more commonly seen in males (Ratio two to one)

Heredity —An inherited susceptibility is recognized

ACTIVE CAUSES

Polyps (Adenomas) —These are believed to be the most important etiologic factor Fifty per cent are believed to undergo malignant degeneration In 25 per cent of carcinoma of the rectum and colon one or more polyps are found in the vicinity of the malignancy

Irritation —Anal fissures crypts papillae, fistulae postoperative scars syphilis pruritus ani strictures hemorrhoids etc although not common do result in carcinoma frequently enough to be considered important Routine examination of all surgically removed tissue will reveal a greater frequency than is now commonly recognized Chronic irritation from constipation although not accepted by all as an etiologic

factor is being taken seriously by eminent clinicians because of the similarity of frequency of constipation and carcinoma in regions of the rectum and colon

Pathology

Origin.—The malignancy most commonly found in the anal canal is the squamous cell carcinoma. In the rectum and the sigmoid and colon the adenocarcinoma is most commonly found.

Location.—See fig. 111.

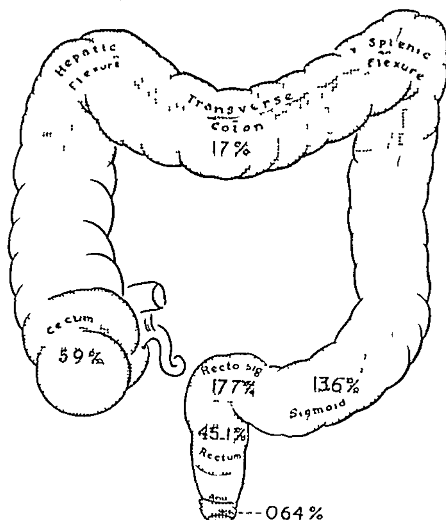


Fig. 111 Percentage of Incidence of Carcinoma in the Colon and Anorectum

which spread via the venous drainage system of the inferior or superior mesenteric venous systems

4 *Implantation* or transportation is another method of spread in which malignant cells are broken off from their mother growth (such as in the sigmoid) and become implanted in the rectum or transportation during surgery

GILCHRIST AND DAVID'S STUDIES OF METASTATIC SPREAD OF ANORECTAL CARCINOMA

The *conclusions derived from the studies of these two men are as follows* 68 per cent of all operatively removed specimens of carcinoma *of the rectum will have metastasis to lymph nodes* Recognition of *involved nodes by palpation is difficult or impossible where the nodes are small* Tumors which are questionably operable because of the large size and because of obesity in the patient may have no lymph node metastasis *Small tumors may have very extensive lymph node metastasis* Tumors having lymph node metastasis tend to be of a higher order according to Broder's classification than those without metastasis Low lying tumors may have high lying metastasis There may be retrograde metastasis *below the tumor Where the tumor is near the level of the levator ani muscles* metastasis along these muscles is common Squamous cell carcinomas metastasize upward along the course of the superior hemorrhoidal artery as well as laterally to the inguinal nodes when the mucosa is *involved*

SYMPTOMS

Early Symptoms—These may be absent, or there may be constipation *alternating with diarrhea or bleeding* Change of bowel habit in an adult who has always had normal stools should arouse suspicion of carcinoma *There may also be weakness, abdominal pain or anemia*

Site of Growth—Anal carcinoma produces constant anal pain with metastasis to the inguinal glands, slight bleeding, constipation, and incontinence Rectal carcinoma produces urgency and frequency of stool, passage of bloody mucus heavy sensation in rectum sacral back ache, and pains in the hips and thighs Rectosigmoidal carcinoma tends to produce chronic or acute obstruction with alternating constipation and diarrhea If early invasion of the bladder occurs the first symptoms complained of by the patient may be urgency and frequency of urina

tion Carcinoma of the transverse and descending colon gives symptoms similar to sigmoidal lesions Right colon or cecal lesions tend to produce anemia weakness and later bowel changes with possibility of a palpable mass in the abdomen before bowel changes occur

DIAGNOSIS

The diagnosis is based upon a history of the above symptoms Digital examination may reveal a mass in the rectum inasmuch as more than half of the malignancies of this region are within reach of the examining finger Proctoscopic and sigmoidoscopic examination may reveal a fungating mass which is very friable and bleeds readily Regardless of location the biopsy establishes a positive diagnosis and confirms the clinical findings The blood picture may be that of a secondary anemia due to the loss of blood in this condition If the first biopsy in a clinically suspicious case is negative repeats should be made Any change in bowel habits obscure anemia abdominal pains or weight loss should require barium studies of the colon with oblique and lateral views of the sigmoid splenic and hepatic flexures This type of roentgen examination is not commonly done by the roentgenologist unless specifically requested Without lateral oblique and spot films the examination is unreliable

Another helpful aid is the Papanicolaou stain (fig 113) of bloody mucus removed from the surface of the lesion or found in the recto sigmoid during sigmoido copy This test is also very helpful in lesions above the area visualized by the sigmoidoscope A positive Pap stain of bloody mucus found in the rectosigmoid suggests a carcinomatous lesion higher up X ray examination including contrast air is then made which will reveal the lesion

Occasionally patients are referred to us by the general practitioner with completed x rays of the colon reported negative for a rectocolonic lesion This type of patient will usually have a history of a change in habit time and blood in the stool and sigmoidoscopy will reveal bloody mucus which is positive on Pap' stain A repeat x ray examination with lateral and oblique views will show the lesion not easily visualized with the routine A P views This is the type of patient who is frequently operated upon for coexisting hemorrhoids—leaving an operable carcinoma neglected until someone else picks it up in an inoperable state months later

DIFFERENTIAL DIAGNOSIS

No case of rectal bleeding should be treated until a proctologic examination and biopsy establish the correct diagnosis. Other conditions to be looked for and to be differentiated from malignancies of the anorectosigmoid area are:

Amebic Granuloma.—The finding of amebic parasites plus proctoscopy and biopsy, which reveal only chronic inflammatory tissue.

Bacillary Granuloma.—A history of bacillary dysentery, positive blood agglutination, proctoscopy, and a negative biopsy establish the diagnosis.

Stricture of the Rectum.—Positive Frei test and a negative Wassermann make the diagnosis. A positive Wassermann may also be present.

Hyperplastic Tuberculoma.—Chest findings of tuberculosis.

Adenomas and Papillomas.—Proctoscopy and biopsy make the diagnosis.

Enlarged Prostate.—There is no break in the rectal mucosa on digital and proctoscopic examination.

Retroverted Uterus, Carcinoma of the Uterus, Inflammatory Pelvic Pathology.—Present no changes in the rectal mucosa.

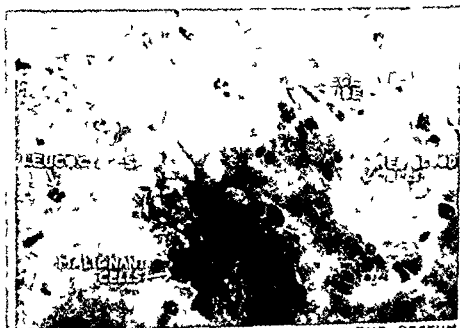


FIG. 113. POSITIVE "PAP" STAIN—ADENOCARCINOMA OF THE RECTUM.
This test is very helpful in questionable lesions and as a means of examining bloody mucus seen during sigmoidoscopic examination.

Krukenberg's Tumors in the cul-de-sac from supposedly dropped metastases from stomach or gall bladder carcinoma present tumefactions on the anterior wall of the rectosigmoid Proctoscopically the mucosa is intact

Endometriosis —Occurs only in the female Surgery reveals chocolate cysts Histologic examination of a piece of tissue confirms the diagnosis Proctoscopically the mucosa is intact

TREATMENT

Prophylactic —Early eradication of polyps anal pathology and alleviation of chronic constipation

Palliative —Surgical diathermy in early and advanced cases followed by radium or x ray (medullary tumors respond better than scirrhous) Presacral sympathectomy for relief of pain in inoperable cases Subarachnoid alcohol injection for pain Colostomy in obstructive cases Diet high caloric high liver bland diet Tonic high vitamin and iron tonics

SURGERY

The following operations are in common use in the surgical treatment of carcinoma of the anus rectum and colon depending upon their location and spread and the surgeon's experience

1 Resection of any rectal or colon lesion with anastomosis (1 stage)

2 Colostomy for palliation or for stage 1 in a 2 stage abdominoperineal resection (Miles) or Lockhart Mummery resection

3 Exteriorization (Mikulicz Rankin)

4 Perineal excision of rectum with preliminary colostomy (Lockhart Mummery)

5 Abdominoperineal resection of rectum—Miles (1 or 2 stages)

6 Abdominoperineal procto sigmoidectomy with preservation of the sphincters

Chapter 31 FECAL IMPACTION

Rectal and colonic impaction consists of the formation and arrest in some part of the intestinal canal of a ball shaped mass of hardened feces too large to escape through an obstructive barrier or through the anal orifice Although most impactions occur in the rectum occasional colonic impaction is encountered in the sigmoid (fig 114)

Location —Seventy per cent occur in the rectum 20 per cent occur in the sigmoid flexure, 10 per cent occur in the descending, transverse or ascending portions of the colon and usually accompany other impactions located in the rectum or sigmoid

Size —Impactions may assume any size, sometimes they are as large as 10 cm in diameter

Consistency —Fecal impactions may be hard, sticky doughy, clay like or calcareous

ETIOLOGY

Anything which obstructs the normal fecal current or which interferes with the regularity of defecation can cause an impaction The most

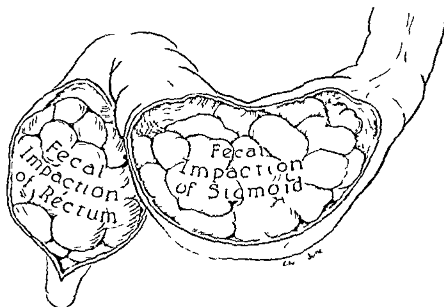


Fig 114 Fecal Impactions

These inspissated stool impactions can *be relieved by instillations of diluted solutions* of peroxide or by Fleet enema and digital breakup of masses.

common causes are excessive intake and accumulation of the indigestible skins and seeds concentrated milk diet concretions of bismuth or calcium and barium sulfate impactions following x ray examinations of the intestinal tract They also occur in the aged and bed ridden cases Occasionally they are seen associated with fissure in ano patients and following surgery Sometimes a fruit pit or gallstone will form the nucleus of an impaction, sometimes atony of the colonic wall as in Hirschsprung's disease or atony of the rectal wall as in dyschesia, may lead to impaction

PATHOLOGY

Pressure and irritation of the fecal impaction produces first a mucosal irritability associated with hypersecretion of mucus followed later by stercoral ulceration diarrhea, bloody mucus and pus

SYMPTOMS

Symptoms are sudden obstipation associated with rectal pain fullness urgency frequency and intestinal cramps Frequent small watery irritating stools which may or may not contain blood mucus and pus Frequent urination due to reflex and pressure on the bladder Constitutional symptoms such as dizziness headache coated tongue foul breath general malaise and abdominal distention may be present

DIAGNOSIS

History of obstipation Digital examination reveals a claylike mass in the rectum Recto abdominal palpation reveals a similar mass usually in the lower left inguinal region in sigmoidal impaction A barium enema (never a barium meal) will determine the location of the mass and differentiate from intrinsic and extrinsic growths of the colon if the impaction is higher than can be palpated with the examining finger

TREATMENT

Rectal Impaction —Administer an oil retention enema (90 cc) of mineral oil or cottonseed oil to soften up fecal impaction After several hours break up fecal mass into smaller masses with finger following with another enema consisting of two thirds water and one third hydrogen peroxide Recently we have found Fleets Packaged enema a good alternate treatment following fingering of fecal mass

Fecal Impaction and Doxinate.—The problem of fecal impaction has been markedly simplified of late by the use of the new drug Doxinate (Lloyd Bros.). This preparation by its effect on surface tension brings about softening of the impacted fecal mass. It is non-irritating and presents no danger of local or systemic toxic effects. Administration is in the form of a retention enema using their regular 1% solution. After fecal softening has been brought about, a tap water enema is sufficient to remove the soft stool.

Colonic Impaction.—Orally, 300 cc. of warm mineral oil two or three times a day. Rectally 300 cc. of warm mineral oil or cottonseed oil as a retention enema, alternating with instillations of 500 cc. of peroxide and water combination (1:3).

Suppositories.—After the impaction has been evacuated, cod liver oil suppositories are inserted several times daily to relieve the traumatic pressure proctitis which usually exists in such conditions.

Chapter 32

COCCYGODYNIA AND PROCTALGIA FUGAX

Pain about the region of the coccyx, referred to as *coccygodynia*, is a clinical entity only too often misunderstood, commonly overlooked and improperly treated. *Proctalgia fugax* is a proctologic entity also referring to a specific type of rectal pain. We feel that both these conditions are the same clinical entity, proctalgia fugax being the acute, and coccygodynia the chronic manifestation of this interesting syndrome.

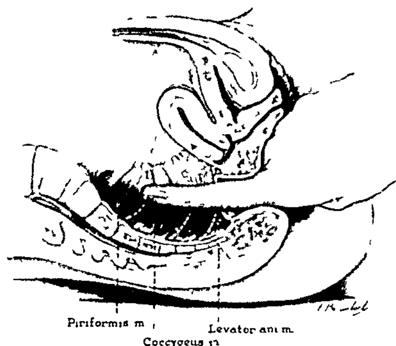


Fig. 115. Coccygodynia

Technique of massage of levator ani, coccygeus and piriformis muscles in the treatment of coccygodynia and proctalgia fugax. With the index finger inserted full length into the rectum the muscles are massaged in the long direction of their fibers applying postero-lateral pressure starting at the spine.

The most commonly described of the two conditions mentioned is coccygodynia This condition was first described by Sir James Y Simpson, in 1859 "When the coccyx or coccygeal joints have been injured or when the surrounding structures were the seat of inflammation any contraction of the muscles connected with the coccyx would excite the characteristic pain of coccygodynia"

ETIOLOGY

The spasm may be either traumatic or infectious We know that injury to any joint muscle, or ligament will bring about a defensive muscle spasm, as evidenced by the acute scoliosis associated with spasm following a lumbo sacral sprain We therefore feel justified in believing that any trauma to the coccyx such as a fall, childbirth, etc, might injure ligaments joints, or muscles and might also bring about a spasm of the levator ani coccygeus, or piriformis muscles A fall on the coccyx might also tear the lateral sacro coccygeal ligament and thus cause pressure upon the fifth sacral nerve which lies beneath this ligament and which forms part of the ano coccygeal nerve plexus (fig 116—insert) Pressure upon this fifth sacral nerve will cause pain localized to the ano coccygeal region Also injury to this area may initiate an inflammatory reaction, proliferation of fibrous connective tissue, and compression of nerves Any undue pressure or stimulus to the coccygeal area would thus set up an area of muscle spasm and tenderness, which would be precipitated by muscular movements such as rising from a sitting position the act of defecation following the act of coitus, and also sitting for any length of time

Anatomically we are cognizant of the lymphatic drainage of the anorectum laterally into the levator ani muscles as well as via the lateral ligaments and superiorly along the venous networks Thus infectious processes such as cryptitis, papillitis fissure in ano fistula in ano hemorrhoids, and prostatitis would give rise to lymphatic drainage into the areas of the levator ani muscles and set up a spasm of these muscles It is in these infectious cases that digital examinations frequently reveal tender irregular nodules in the muscles themselves which we have considered as either areas of fibrositis or lymphadenitis Therefore in these cases treatment of the coccygodynia necessitates eradication of the areas of infection as mentioned

Proctalgia fugax is similar to coccygodynia except that in this condition there is a sudden onset of an acute muscle spasm such as that

which occurs when an individual gets a cramp in the leg This acute spasm is mo t likely brought about by an accumulation of flatus a piece of stool or coitus etting off a trigger mechanism with the result ing spasm or at night any sudden unconscious move on the part of the patient may bring into play the pelvic muscles such as the gluteus minimus or piriformis which in turn would act as a trigger mechanism causing an acute spasm of the muscles previously mentioned Thus the pathogenesis behind proctalgia fugax would be identical to that of coccygodynia but naturally to a much le er degree Understanding the above etiology and pathology of these conditions makes one better able to under tand the symptom complex

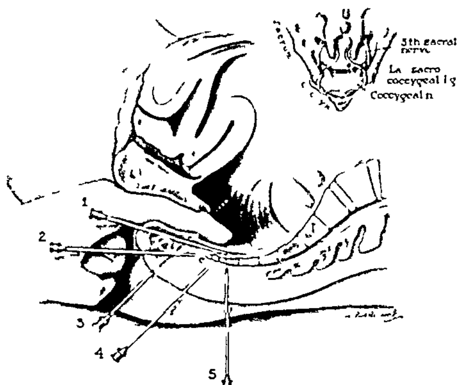


Fig 116 Coccygodynia

Technique of injection of coccygodynia Ne dl #1 #2 #4 and #5 inject ane thetic oil into an l about the ano-coccygeal pl xus while #3 d monstrates the depo ition of anesth tic oil int the mu cl Insert reveals the anatomic po ition of the fifth acral n rve as it cour es un l r th lateral sacro coccygeal ligam nt and joins the coccygeal n rve t form the ano-coccygeal plexus

SYMPTOMS

In *coccygodynia* the patient usually complains of pain which he describes as being in the rectum or about the tail bone, which is aggravated by sitting for any length of time, sometimes it is noticeable when arising from a sitting position and sometimes worse before during, or after a bowel movement In *proctalgia fugax* the complaint is that of an acute pain in the rectum which usually comes on at night awakening the patient, this has been described as being similar in nature to the pain of a 'charley horse' The pain in the rectum becomes progressively worse until the patient is either writhing in pain or lying motionless, afraid to move lest he cause an exaggeration of this pain This syndrome lasts from 5 to 15 minutes and just as suddenly subsides leaving the patient symptom free except for a sense of relief and fatigue In coccygodynia the patient states that the pains occur regularly, while in proctalgia fugax they occur only occasionally The diagnosis of these conditions is based primarily upon the history as noted above and physical findings as given below When these patients are examined a complete anorectal examination is in order with the examiner watching for cryptitis papillitis fistula in ano fissure pruritus ani internal hemorrhoids and chronic prostatitis Physical examination in either of these conditions will reveal marked tenderness on digital pressure in the region of the levator ani, coccygeus or piriformis muscles in addition to spastic contraction of any of these muscles In proctalgia fugax digital pressure upon these muscles produces the same discomfort as that experienced with coccygodynia

TREATMENT

Treatment of these proctologic entities has been very successful in our hands Digital massage as advocated and practiced by Thiele and others has given us consistently good results This is performed by inserting the index finger full length into the rectum and massaging the muscles in the long direction of their fibers beginning at the spine and applying pressure in a postero lateral direction (fig 115) These massages are given two to three times weekly the interval between treatments being reduced as the condition improves In those patients in whom digital massage is not completely successful or in those cases where the tenderness is so acute that massage is almost unbearable

injection of a long acting anesthetic such as Nupercaine in oil is given. This injection is given with a tuberculin syringe and a 2 inch, 20 gauge needle depositing the anesthetic oil about the coccyx and also into the muscles involved using the left index finger as a guide (fig 116). We use no more than 1 cc of anesthetic oil at one treatment. Surgery may be necessary to clear up any focus of infection or infected areas such as cryptitis, papillitis, fissure, fistula, internal hemorrhoids or chronic pruritus ani. The prostate should receive any indicated treatment.

Following surgery of the anorectum and its resultant postoperative purulent drainage, symptoms of coccygodynia may develop, which is undoubtedly due to the same infectious origin as mentioned previously. One will have to be patient and allow the anorectum to heal and the purulent drainage to subside before the symptoms will be alleviated. In those cases of coccygodynia where surgery is performed for associated anorectal pathology, injection of the muscles involved with anesthetic oil in the operating room before surgery is performed will alleviate a good number of these complaints. We have seen many patients with coccygodynia who have previously been subjected to a coccygectomy with poor results. We feel that coccygectomy does not have any place in the therapy of coccygodynia. The simple methods of treatment mentioned above have given us uniformly excellent results over a long period of time.

Chapter 33 PILONIDAL CYSTS AND SINUSES

PILONIDAL cyst is a congenital defect that is probably due to faulty invagination of the skin (ectoderm) in the midline over the sacro coccygeal area during fetal development This pathological entity is characterized by the formation of sinus tracts with a tendency to undergo abscess formation Frequently small hairs are seen protruding from one of the midline openings

Synonyms —Pilonidal cyst is also known as postanal dimple sacro coccygeal dimple, and coccygeal dimple In World War II the Army nicknamed this condition 'jeeps disease" because of the frequency of its occurrence in susceptible individuals driving or riding jeeps

ETIOLOGY

Predisposing causes are as follows The greatest number are seen in young males it is peculiar to Caucasians 20 to 30 is the most common age, and drivers of cars, trucks, and jeeps are most susceptible

Among theoretical causes it has been attributed to ectodermal in vagination followed by traumatism later in life or it may be caused by the persistency of the coccygeal vestige of the neural canal or it may be the result of a vestigial skin appendage developing at puberty ('preen glands,' as in birds) Reverse polarity and growth of hair follicles is believed to be another theoretical cause of pilonidal cyst

PATHOLOGY

Gross The external orifice of a pilonidal cyst in its uncomplicated form is smooth, either round or oval, barely admitting a probe tip Frequently there may be a tuft of hair in the opening It is commonly located over the sacrococcygeal articulation or lower sacrum Usually the single sinus extends into the subcutaneous and fatty tissue to end in a pouch or cyst over the sacrum (fig 117) In the presence of suppuration two or three lateral tracts may develop similar to fistulae with granulating walls and ragged openings

Microscopic The sinus walls are lined by stratified squamous epithelium The cyst cavity contains sweat glands and hair follicles

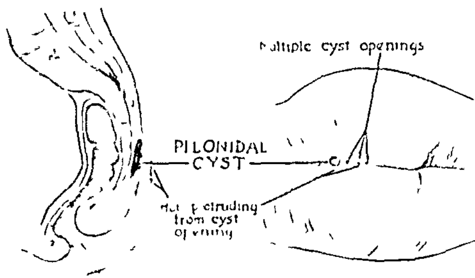


Fig. 117. Lateral and Sims Position Views of a Pilonidal Cyst Containing Hair. Note Strands of Hair Protruding from Openings in Midline over Cyst

SYMPTOMS

The *quiescent stage* is usually associated with no symptoms.

The *suppuration stage* presents a history of pain and swelling about the sacrococcygeal area following riding, falling, or any other trauma to this area. Later there is soreness, moisture, and an irritating purulent discharge. Remissions and exacerbations are common. In severe cases chills, fever, and general constitutional disturbances are present.

DIAGNOSIS

The diagnosis is made on the presence of one or more small suppurating openings in the dorsal midline over the sacrococcygeal region into which a probe may be inserted. The opening is usually discharging *seropurulent material; a tuft of hair may be seen in the orifices.*

DIFFERENTIAL DIAGNOSIS

In an anorectal fistula the opening over the fistula is rarely found over the coccygeal area. *The external opening of a fistula will have an* opening within the rectum, usually at the pectinate line. Pilonidal cysts rarely have communication with the rectum. In a carbuncle there is no evidence of any hair protruding. In the case of carbuncle, we are

dealing with one solid mass which is different from that described for pilonidal cyst Hydradenitis suppurativa with its many suppurating and nonsuppurating sinuses which do not communicate with each other has to be considered Osteomyelitis, tuberculosis, syphilis, and actinomycosis are rarely seen but should be kept in mind in the differential diagnosis of pilonidal cyst

PALLIATIVE TREATMENT

Silver nitrate treatment Following the administration of a local anesthetic, incise down to the cyst remove hair and other contents protect surrounding skin with collodion, pack wound with powdered silver nitrate covered by gauze After three to five days the cyst lining separates, leaving a healthy, granulating surface

Carnoy's solution (modified) After local anesthesia, the cyst is incised and its contents are aspirated Several days later the Carnoy's solution is used to swab the cavity Ten to 15 cc of the following formula is placed into the cavity and permitted to remain for about ten minutes The treatments are repeated every other day at first, and at longer intervals later

CARNOY'S SOLUTION

Absolute alcohol	60
Chloroform	30
Glacial acetic acid	10
Ferric chloride	15 0

Although a fairly good temporary relief can be obtained with the above palliative treatment it has been our experience that surgery is the only method that will produce a lasting result In years previous to the use of the open method every other type of operation closed or open tried by us was associated with a small percentage of recurrence Since 1939 we have used the open method without a single recurrence

SURGICAL TREATMENT

Open Operation—Following a general anesthetic and the injection of methylene blue into one of the pilonidal cyst openings (fig 118), a probe is inserted from the lower to the upper extent of the cyst, and the tissues are incised down to the probe The probe is then reversed to the lower extent of the cyst, and the remaining tissues are incised This gives one an idea of the entire length of the cyst An elliptical incision is then made, including points one half inch above and below the upper and lower extent of the open cyst respectively (fig 118 2)

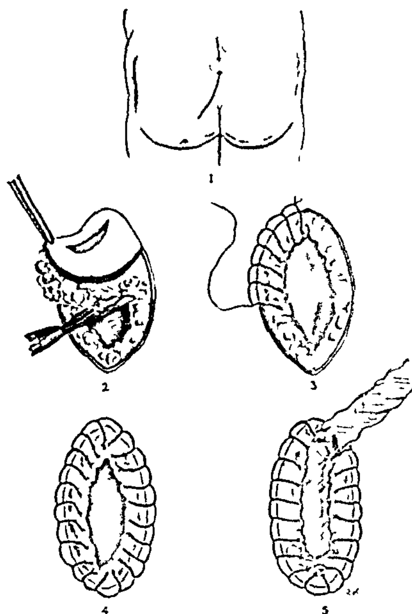


FIG 118 MODIFIED BUIE OPEN OPERATION FOR PILONIDAL CYST

A probe is inserted from the lower to upper extent of the cyst and the tissues are incised down to the probe (*1*) An elliptical incision is then made including points one half inch above and below the upper and lower extent of the open cyst respectively (2) The incision is continued downward to the sacrococcygeal ligaments, excising the entire cyst and including normal tissues above below and to the sides of the cyst (3) The edges of the skin are then sutured to the bottom of the cyst cavity with a continuous heavy black braided silk suture (*4*) Sulfa powder is sprinkled into the cavity and the cavity is then packed with iodoform gauze (*5*)

The incision is continued downward to the sacrococcygeal ligaments excising the entire cyst and to include normal tissues above below, and to the sides of the cyst (fig 118, 3) All bleeding points are coagulated The edges of the skin are then sutured to the bottom of the cyst cavity with a continuous heavy black braided silk suture (fig 118 4) Sulfathiazole powder is sprayed in the wound, and it is then packed tightly with iodoform gauze (fig 118 5) The packing is removed in two days, and the sutures are removed in four to five days

Office Treatment thereafter consists of painting the wound with Carnoy's solution every other day

Home Treatment—A dressing of Desitin cod liver oil ointment or *equal parts of 5 per cent scarlet red ointment and Surfacaine ointment* is applied daily until the entire cavity has completely closed, which requires about six weeks

Chapter 31 CONSTIPATION

ETIOLOGY

FUNCTIONAL CAUSES

PERHAPS the greatest perpetuating cause of constipation is the disregard of habit time. To this should be added the uninviting condition of toilets in the poorer types of schools, shops, offices, farms and tenements.

Sedentary Habits and Lack of Exercise.—Exercise usually aids in regularity. Certainly building up the abdominal muscles aids materially in increasing intra-abdominal pressure, which is an important factor in normal defecation.

Insufficient Water Intake.—A common dietetic error is the consumption of a highly concentrated dry diet. In such cases, the drinking of water on a fasting stomach in the morning as well as before meals may be all that is necessary to cure the constipation.

Dietetic Deficiencies.—A lack of roughage, vitamins, and mineral salt is another common offender. Lack of sufficient roughage for those with atonic colons, and an inability to eat roughage in case of spastic colon, gallbladder disease, and peptic ulcer contribute to constipation.

Laxative Abuse by habitual daily takers of laxatives produces a continuous need for larger doses until bowel movements are of liquid consistency and no longer occur except as a result of strong cathartics.

Obesity Diets lacking in sufficient intake, so common amongst women today, are responsible for many cases of constipation. It is quite easy to make the patients understand that an insufficient intake will result in an insufficient output.

Instability of the Vegetative Nervous System.—The stress and strain associated with the demands of modern civilization plus the American habit of hustle and bustle have produced one of the diseases of modern civilization, namely, the unstable colon. Constipation manifests itself on the soil which has been prepared through the agency of an unstable nervous system. This may be congenital or acquired.

Endocrine Dysfunctions, Hypothyroidism, Mild Myxedema.—In women with low metabolic rates, in the fourth and fifth decades, and frequently of the obese type, there is a general lowering of endocrine glandular

function, probably associated with ovarian dysfunction Where intractable constipation exists with the above, it may be suspected that hypothyroidism or mild myxedema exists

Atony of Intestinal musculature may result from malnutrition cachexia, senility and wasting diseases

Functional Dyschesia (Rectal Constipation) —In some cases of constipation it is found that the rectum is practically always filled with feces Study by means of the roentgen ray shows that there is no delay in the progress of the stool through the proximal colon In other words we are dealing with a condition in which that portion of the gut charged with the actual act of defecation fails to function

Coprostasophobia —There are individuals who constantly feel that there is something in the rectum which should come out Some really suffer from rectal constipation, while others are just 'hipped' on the subject of rectal hygiene and are forever cleaning themselves out

Psychic and Nervous Factors —The importance of psychic factors in constipation can hardly be exaggerated Even mild excitation such as that associated with travel and change of environment is a potent cause of constipation in susceptible individuals—as are, of course the grosser emotions of fright and anxiety Fatigue may also be considered under the head of nervous factors A sufficient degree of general bodily rest and relaxation is essential to the proper functioning of all the organs and the bowels form no exception to the rule Whether or not the fatigue products of metabolism are actually constipating it is nevertheless certain that many cases of costiveness are associated with insufficient rest and particularly with insufficient sleep This is very often the case with those who work at night

ORGANIC CAUSES

Kinks —At certain points, kinks are apt to occur when there is a dropping of the stomach and intestine From above downward, kinking may occur at the junction of the duodenum and jejunum at the distal end of the ileum, at the hepatic flexure, at the splenic flexure and at the sigmoid flexure Should pericolic membranes form around these kinks an actual complete obstruction may occur

Anomalies of the Colon (Redundancy) —The most important congenital anomaly contributing to constipation is redundancy of the colon Over three quarters of the patients with this malformation suffer from intestinal stasis One should not imagine that the redundant loops cause actual obstruction but rather that they furnish the site for the develop-

ment of localized spasms and pockets retaining old fecal debris and voiding only the overflow

The redundant colon occurs more often in men and in the sthenic (stocky) The redundancy may take the form of simple pleats or reduplications or of extensive loops and twists The most frequent site is the pelvic colon The condition is believed to become exaggerated following chronic rectal constipation and straining at stool

The constipation of colonic redundancy often dates back to childhood The interval between spontaneous bowel movements may extend from three days to a week or more There is often discomfort in the lower right quadrant characterized as dull dragging or sticking in nature and increased by bodily exertion

Not infrequently there is gas pressure fullness or pain referred to the exact location of the redundant loop in the left colon Sometimes precordial distress or increased belching is provoked by gas accumulation under the left diaphragm The passage of flatus is at times difficult but when it does take place it is often followed by complete relief of symptoms

Low fixed cecum is most commonly present in women of the asthenic (tall) type This is the condition that occasionally receives the diagnosis of "chronic appendicitis Low fixed cecum is one of the anomalies responsible for constipation

Weakness of the Abdominal Muscles—Weakness of the abdominal muscles following childbirth obesity abdominal operations advancing age diastasis recti and lack of abdominal exercise diminish intra abdominal pressure an important factor in producing normal bowel evacuation

Weakness of the diaphragm such as that in emphysema or asthma occasionally contributes to constipation

Diverticulitis—Diverticulitis (especially the hyperplastic variety) producing a hyperplastic tumefaction will progressively narrow the lumen of the affected bowel and cause a progressive constipation Simple diverticulitis is usually associated with spastic constipation

Intrinsic and Extrinsic Tumors of the Rectum and Colon—Carcinoma of the rectum and colon may produce progressive obliteration of the bowel lumen with progressive constipation So may pressure on portions of the sigmoid and colon from tumors in adjoining organs such as fibroids ovarian cysts carcinoma of the uterus Krukenberg tumors and endometriosis Strictures of the rectum due to lymphopathia venereum syphilis and ulcerative colitis are also causes of constipation

Megacolon, or Hirschsprung's disease, is a congenital dilatation of the colon, characterized by narrowing of a segment of sigmoid. Many theories had been propounded and many therapeutic agents administered with little success.

In 1948, Svenson and others described this condition as caused by congenital absence of the myenteric plexuses in a segment of sigmoid colon. He and many others since then have resected this segment and performed end to end anastomosis with good results.

Pseudo megacolon, or idiopathic megacolon, is found in adults and is a frequent cause for constipation. In this condition, there is tremendous dilatation of the colon and rectum down to the anal canal. There is no evidence of narrowing anywhere in the colon and rectum and no loss of myenteric plexuses pathologically. Spinal anesthetic in these cases will cause frequent bowel movements thus indicating some autonomic imbalance. Treatment consists of diet, laxative, enemas, and at times mecholyl bromide.

Rectal and Sigmoidal Prolapse.—A condition very seldom mentioned as a cause of constipation is rectal and sigmoidal redundancy. Here we have an excessive amount of rectal and sigmoidal tissue which causes an invagination or partial prolapse on bearing down at stool.

Instead of pushing stool down by the mechanism of defecation the bowel wall is forced down instead, obstructing the passage of the stool. This condition is diagnosed during digital palpation by asking the patient to bear down when the bowel will be felt to come down and meet the examining finger.

Organic Dyschesia.—Organic dyschesia frequently develops secondarily to any condition which causes pain during defecation, such as inflamed or thrombosed hemorrhoids, anal ulcers or fissures, pectenosis and pelvic peritonitis. In women the condition is frequently caused or aggravated by childbirth. Spinal cord lesions may cause a stubborn dyschesia.

Anal Pathology.—Fissures, cryptitis, papillitis, pectenosis and anal stenosis are common causes of constipation though frequently overlooked.

TYPES OF CONSTIPATIONS

There are three main types of constipation

1. Spastic constipation
2. Atonic constipation
3. Rectal constipation (dyschesia)

Spastic Constipation or dyskinetic constipation has in our own experience been found to be the most common variety. The tonicity of the descending colon is increased with a subsequent decrease in the diameter of the colon and an increase in diameter of the cecum and ascending colon. With a narrowing of the distal colon peristalsis is impaired and the haustrations are marked and hypermotile with a resulting delay in evacuation time (fig. 119).

Atonic Constipation is characterized by a relaxation of the colon musculature (fig. 120). This condition is usually found in the aged, the debilitated and the undernourished and usually follows in the path of long standing and excessive use of cathartics.



FIG. 119 X-RAY OF A SPASTIC CONSTIPATION. NOTE THE CONTRACTED HAUSTRAL SEGMENTS WHICH FORM THE BALL-SHAPED STOOL.

Rectal Constipation (dyschesia) is associated with rectal stasis Stool is commonly found in the patients' recta without their being conscious of its presence It is usually the result of years of neglecting to answer the call of defecation The defecation reflex is gradually desensitized and in time requires a great deal of stimulus before it incites its natural muscular contraction and emptying of the rectal contents It may also result from long use of cathartics and purgatives which produce liquid



FIG 120 ATONIC CONSTIPATION

stool and do not produce sufficient bulk to initiate the required stimulus to the defecation reflex In old bedridden and paralytic patients lack of activity and temporary discontinuation of digestive routine also produces rectal constipation

DIAGNOSIS OF CONSTIPATION

If the patient complains only of constipation without any abdominal pain or belly-consciousness the findings point to a hypokinetic (atonic) type of constipation

If on the other hand the constipation is accompanied by abdominal pain excessive mucus and increased discomfort when taking laxatives the condition is usually dyskinetic or spastic constipation

Progressive constipation with abdominal discomfort may be due to hyperplastic diverticulitis tumor in the left colon (fig 121) stricture

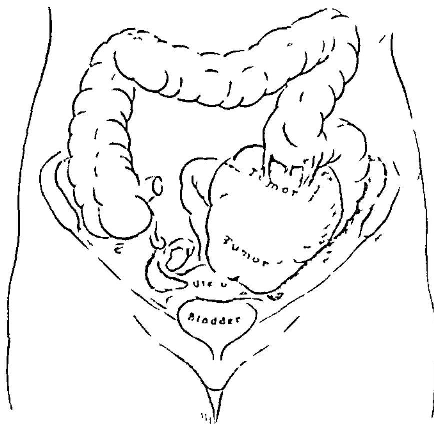


FIG 121 OBSTIPATION CAUSED BY LARGE UTERINE TUMOR PRESSING ON SIGMOID

carcinoma of the rectum or sigmoid, or to extrinsic pathology such as Krukenberg tumors, fibroids of the uterus, ovarian cysts Hodgkin's disease, presacral dermoids, etc Proctoscopic and sigmoidoscopic examinations are very important in every case of constipation Any recent change in bowel habit or abdominal cramps in a person past 40 should be suspected as carcinoma until proved otherwise Occult blood, bloody mucus or black stools suggest malignancy as a cause of constipation

If the patient is obese and the metabolism is low, hypothyroidism should be suspected

The *carmine test* or the barium meal *roentgen examinations* are very excellent aids in the determination of an existing constipation Barium retention in the colon after 36 hours suggests constipation The longer the retention, the greater the degree of constipation (fig 122) If the barium meal is arrested at about the mid transverse colon it suggests the ascending type of constipation If the left side of the colon appears narrow and stringy, spastic colon exists, and if the entire colon seems dilated, atonic colon can be diagnosed By administering two 5 grain capsules of carmine with breakfast, the red color in the stool should appear normally within 24 hours By noting the color of the stool in subsequent bowel movements, one can determine the existence and degree of constipation Red appearing stools after 24 hours is indicative of constipation This is an excellent aid when x ray is not available it

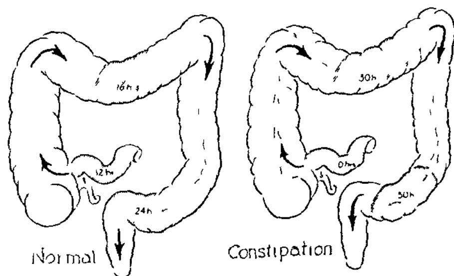


FIG 122 SCHEMATIC ILLUSTRATION SHOWING THE PASSAGE OF STOOL IN THE NORMAL AND IN CONSTIPATION

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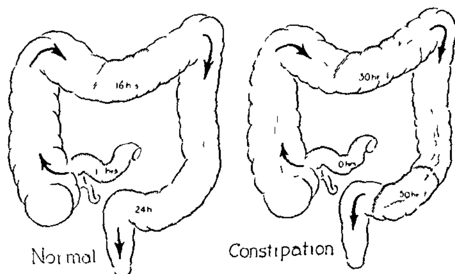


FIG 122 SCHEMATIC ILLUSTRATION SHOWING THE PASSAGE OF STOOL IN THE NORMAL AND IN CONSTIPATION

serves also as an inexpensive check up from time to time to watch the progress of treatment Physical examination is helpful and is performed by abdominal palpation and by rectal digitalization By the former method, a contracted or knotted and usually tender iliac colon may be rolled over the left iliac fossa in cases of spastic constipation In atonic constipation the entire colon is dilated and is recognized by its lack of tone The metabolism is frequently low In dyschesia a rectum filled with hard scybala may be discovered by the gloved finger even though the patient has no desire to go to stool If the anal canal is very painful it suggests that anal pathology is contributing to the constipation

TREATMENT OF CONSTIPATION

The treatment of constipation should be directed towards restoration of colonic function and should include early habit training proper diet exercise and medicinals

Prophylaxis should provide for regular food intake for routine visits to the toilet sufficient water intake—especially on arising—a balanced diet containing sufficient roughage abdominal exercises and correct posture

General Treatment —Patients should be instructed to go to stool at the same hour each day either before or after breakfast to try for 10 minutes by straining at regular intervals to omit this if hypertension hernia or anorectal disease exists If no result is obtained to insert a glycerin suppository

Enemas —If no result is obtained with the above the patient is instructed to take a glycerin enema consisting of 1 to 3 ounces of glycerin to a pint of water In rectal dyschesia and sigmoidal constipation it is better to give an enema than to disturb the entire intestinal tract by a laxative If anal pathology exists omit the glycerin

Water Intake —About eight glasses of water should be consumed in a day Drinking normal saline or lemon juice and water on arising will frequently in itself produce the act of defecation

Diet —Certain individuals habitually omit from their diet those food stuffs possessing inherent qualities of increasing intestinal peristalsis Such foods include the vegetables and cereals with cellulose residues which stimulate peristalsis chiefly by mechanical means the fruits which also act mechanically and the fats which act both chemically and mechanically

Patients on ulcer diet, spastic colon diet, gallbladder diet, and obesity diets become constipated and should have some form of smooth bulk added to their food lists, such as metamucil, karaya bassorin agar agar, sterculia gum, etc

Coprostasophobia and Psychotherapy—In cases of coprostasophobia where all investigations prove negative patients should be shown the x ray films and results of other tests to convince them of their normality The psychic and nervous causes of constipation should be controlled as much as possible by appropriate mental and emotional hygiene, by adequate vacations, rest and sufficient sleep, and by sedative medication

Visceroptosis and Malnutrition—These should receive appropriate attention Abdominal support and a fattening diet should be prescribed when indicated For the latter butter, cream, and olive oil are particularly to be recommended

Abdominal Exercise—This is helpful because it tightens the abdominal wall and increases intra abdominal pressure

Smoothage Smooth Bulk Producers (Hydrophilic Colloids)—Mechanical laxatives are definitely replacing chemical laxatives chiefly because they produce smooth bulk and lubrication without chemical stimulation, irritation, or absorption These act by absorbing water, forming a gel like mass which appreciably increases the bulk of the stool Not being of the oil family, they do not interfere with the absorption of fat soluble vitamins A and D The more commonly used smoothage products are metamucil, cellothyl, mucilose and siblin

Smoothage laxatives are taken in 1 or 2 dram doses once or twice a day followed by two glasses of water Patients who are reducing and wish to curb their food intake should take the gums before meals This helps to fill the stomach and curb hunger Otherwise it can be taken after meals

Medicinals—In atonic constipation strychnine 1/60 grain to 1/30 grain given about one hour before breakfast will increase the reflex irritability of the bowel by the end of the meal Atropine 1/150 grain to 1/200 grain or 1/6 to 1/4 grain extract of belladonna or 1/6 to 1 2 grain extract of hyoscyamus will paralyze the myoneural junctions of the parasympathetics and be beneficial in spastic constipation Cascara in some form and in varying doses can be added to gum laxatives when necessary Bassorin and mucara are both gum laxative compounds with cascara Siblin is an excellent smooth bulk laxative containing vitamin B

Phenolphthalein—This is contained in more than 125 proprietary preparations in the form of laxative drugs, chewing gums, confections fruits and biscuits It is believed to produce intestinal catarrh skin eruptions and visceral disturbances in sensitive patients and is best omitted in the treatment of constipation

Mineral Oil—This is diminishing in popularity because it is believed to mix with food and interfere with digestion, absorb some of the vitamins tend to leak and increase intestinal flatus However we have prescribed mineral oil for various conditions over a period of 28 years and have never noted any untoward effects We advise only one dose at night

Lactodextrin Acidophilus and Lactic Acid Preparations—Any kind of these frequently increase spasticity by increasing the acid content of the bowel do not correct constipation in the majority of cases and lose their flora-changing effect soon after the preparation is discontinued

Colloidal Kaolin—This colloidal form of refined Fuller s earth has the property of absorbing and adsorbing bacteria and toxins in the intestinal tract and rendering them innocuous It is inert and is not absorbed in the intestinal tract It soothes the mucous membrane and aids in changing the intestinal flora It does not produce reactions and aggravation of symptoms as is commonly noted with lactic acid preparations It has no contraindications In the writers hands it has been a most satisfactory remedy in the treatment of many gastrointestinal disturbances Two drams to 2 ounces a day dissolved in water can be given without reactions For changing the intestinal flora 2 ounces in divided doses at first cutting down to 1 dram twice a day is excellent treatment Colloidal kaolin in combination with phenobarbital grain 1/4 extract of hyoscyamus grain 1/4 and magnesium oxide in varying do es (Maolin formula no 3 Alphaden Co Chicago) has been the writers' most satisfactory compound in the treatment of spastic colon

Bran—Bran is rough tends to pack and is contraindicated in spastic colon gallbladder disease ulcerative lesions of the intestinal tract and anorectal disease

Vitamin B Complex—This is believed to increase or normalize colon tone by its effect on the vegetative nervous system or by the favorable effect of increased food intake following increased appetite produced by these vitamins

Mineral Salts—Mineral salts especially calcium and phosphorus

should be added to the dietary in every case of constipation, especially the atonic variety

Endocrine Therapy —According to Lahey, only those of the hypothyroidism group (mild myxedema) with a blood cholesterosis of 200 or more will respond to 2 to 6 grains of thyroid daily Ambrose reported several cases of *chronic constipation* which were *successfully treated* with pituitrin after other measures had failed

Surgery —The most *indicated surgery in the treatment of constipation* is that of the anal canal Conditions such as cryptitis fissure, pectenosis and anal stenosis should be corrected The *repair of ventral hernia and* diastasis recti are also aids in increasing intra abdominal pressure and correcting constipation Operations for the relief of visceroptosis, redundant colon, adhesions bands, kinks, etc in the treatment of constipation should be performed only as a last resort and then only after due consideration and deliberation Resections of the colon for infectious granulomas and carcinomas are indicated and *necessary* Removal of tumors pressing on the bowel, such as fibroids, ovarian tumors endometriosis, presacral tumors, etc is indicated and necessary to relieve extrinsic causes of constipation The surgical treatment of Hirschsprung's disease is discussed in detail in chapter 2

TREATMENT OF THE MOST COMMON FORMS OF CONSTIPATION

Spastic constipation is successfully treated by rest, sedatives, intestinal antiseptics, antispasmodics, and nonirritating mild laxatives Such a combination is the previously mentioned Maolin no 3, made up of colloidal kaolin magnesium oxide, phenobarbital, and extract of hyoscyamus The amounts can be varied according to the needs of the patient Where smooth bulk is desirable any of the gums previously mentioned plus the following combination works well

Powd. extr of hyoscyamus	gr 1/4
Powd extr of belladonna	*gr 1/6*
Phenobarbital	gr 1/4
	to gr 1/2
Powd extr of cascara	*gr 1/6 up*
(can be added if necessary)	

M et pone in capsulam *Disp* tales doses No —
Sig 1 cap 2 or 3 times a day

The diet should be bland to help put the colon at rest Cleansing enemas of normal saline and sodium bicarbonate solution *are helpful*

to start off the treatment and then are taken only occasionally as necessary Oil retention enemas can be used if the stools are very dry but they are a nuisance and are seldom if ever adhered to by patients for any lengthy period Estrogenic substances are helpful in spastic colon cases going through the menopause Psychotherapy is occasionally indicated Removal of anorectal pathologic changes is most important in many cases

Atonic constipation is best treated by stimulating peristalsis in several ways First, a liberal mixed diet including raw vegetables and raw fruits unless contraindicated by the coexistence of gallbladder disease In addition the smooth bulky hydrophilic colloids with an abundance of water twice a day abdominal exercises to increase intra abdominal pressure strychnine 1/60 grain to 1 30 grain and thyroid extract grain 1/2 and up three times a day are all helpful aids to stimulate peristalsis in atonic constipation Glycerin enemas to start the treatment off and then as necessary are helpful

In *dyschesia* (rectal constipation) all anal pathology such as fissures cryptitis papillitis pectenosis etc should first be alleviated Glycerin enemas or glycerin suppositories are more satisfactory than oral laxatives A suppository containing 3 to 5 grains of quinine dihydrochloride in oil of theobroma (low melting point) helps to renew or restore the desensitized defecation reflex (Graham) If no anal pathology such as cryptitis or fissure in ano is present the patient should be placed on a general diet that includes all the bulk producing raw and cooked vegetables

In rectal and sigmoidal mucosal redundancy either of two things is indicated either a sigmoidopexy pulling the loose bowel up from above and fixing it to the abdominal wall or any other of the recognized procedures or the injection of a 4 per cent solution of urea quinine hydrochloride in the redundant bowel wall through a sigmoidoscope

DOXINATE

We have just recently added a new drug called Doxinate (Dioctyl sodium sulfosuccinate Lloyd Bros) to our armamentarium for the treatment of constipation It presents a new approach to the problem of constipation since it is not a laxative a bulk producer or a lubricant The action—solely that of fecal softening—results from greatly improved dispersion of immiscible fecal material due to decreases in

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In rectal and sigmoidal mucosal redundancy, either of two things is indicated: either a sigmoidopexy, pulling the loose bowel up from above and fixing it to the abdominal wall or any other of the recognized procedures, or the injection of a 1 per cent solution of urea quinine hydrochloride in the redundant bowel wall through a sigmoidoscope.

DOXINATE

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surface tension One of its most important features is that it does not affect digestion or absorption of nutrients and vitamins

Doxinate should provide, for the first time, an effective oral easily administered safe adjunct for the successful treatment of chronic functional atonic or spastic constipation By virtue of its dispersant action Doxinate permits the passage of soft stools without causing peristaltic stimulation either through irritation or distention of the bowel It suffers none of the disadvantages of chemically irritating laxatives or of oil administration

In many cases, the softening of the fecal mass may in itself permit bowel movement and make bowel re-education simply a matter of establishing proper habit time

Doxinate is prepared in a 1% solution for infants and elderly patients, and in capsule forms (20 or 60 mg) for all other patients Dosage is 1 to 2 cc of the solution once or twice per day, or 1 to 2 capsules once or twice per day as indicated As much as 240 mg per day may be given, but doses greater than this offer no advantages, although the drug is non toxic

Doxinate plus Cascara has been found ideal in cases of atonic constipation while Doxinate plus homatropine has been found to be excellent in cases of spastic constipation In rectal constipation, Doxinate orally plus glycerin suppositories has been very efficacious

Patients who have tried literally hundreds of anti-constipation "drugs" have responded very well to this new *preparation Of course, a proper* selected diet for the individual 8 glasses of water daily, attention to emotional problems, daily habit time and correction of anorectal pathology when present are important adjunct treatments to Doxinate therapy

Chapter 35 FOREIGN BODIES AND INJURIES

ALTHOUGH foreign bodies and injuries of the rectum and colon are not met with frequently, they are seen occasionally among industrial workers, laborers, builders, farmers, and others whose work may result in falls. They are also seen at times in children following impalement on a picket fence. The insane and the perverted present as great a frequency, or greater, of foreign bodies as any of the above mentioned group.

Foreign Bodies in the Anal Canal

Bran, popcorn, toothbrush bristles, seeds, bits of apple core, and splinters of bone and shell occasionally lodge in the anal crypts.

SYMPTOMS

Foreign bodies such as bones, seeds, etc., in anal crypts produce exquisite pain because this area is highly supplied with sensory nerves. Lack of proper and immediate care may result in abscess and fistula formation.

TREATMENT

With the aid of a local, spinal, caudal, or general anesthesia, the anal canal is exposed and the foreign body is removed. Antiseptic enemas and a rectal ointment are prescribed until the injury is healed. Combiotics can be used for several days as an extra aid to prevent abscess formation.

Foreign Bodies and Injuries to the Anorectum

Foreign Bodies In The Rectum.—Clothespins, pitchforks, hoes, bottles, tumblers, vases, eggs, brooms, pencils, knives, bolts, door handles, potatoes, apples, stones, handles, valves of steam radiators, hard rubber and metal enema tips, and thermometers have been found.

Injuries To The Anorectum.—Perforations of the rectum during sigmoidoscopic examination, punctures by urethral sounds, perforations

while passing a rectal bougie injuries while performing a perineal prostatectomy and perineorraphy, lacerations by fractures of the pelvic bones, following introduction of compressed air and perforations following gunshot wounds

SYMPTOMS

In the rectum, foreign bodies produce pain hemorrhage secondary infection ulceration of the mucosa and urinary disturbances

TREATMENT

With any of the above mentioned anesthetics the rectum is exposed with the aid of a speculum and the object is removed For smooth objects a piece of gauze bandage is pushed up beyond the object, forming a loop after which both free ends are grasped and the object is removed in a sling Obstetrical or alligator forceps sometimes aid in removing objects Objects like potatoes and apples may be readily removed after boring a hole through them to overcome suction Broken pieces of glass and other articles with sharp edges should be covered with gauze before removal is attempted Hemorrhage must be controlled Antiseptic enemas and a bland diet should be continued until relief is obtained For rectal injuries, sulfathaladine tablets 8 to 20 daily should be administered, depending upon the size of the patient This dosage should be gradually tapered off until the injury is completely healed To prevent or to treat complications combiotics can be administered for several days Extraperitoneal rectal lesions are not closed but drained perineally

Home Treatment—Consists of a daily enema of 5 drops of tr iodine in a pint of warm water, followed by insertion of a cod liver oil suppository several times daily

FOREIGN BODIES AND INJURIES TO THE COLON

Foreign Bodies In The Colon—Gallstones pins fecal concretions of pits bran psyllium seed magnesium or calcium carbonate, bismuth salol and combinations of phosphates and calcium have been found

Injuries To The Colon—Gunshot wounds impact during automobile injuries compressed air hose held against anal opening etc

SYMPTOMS

In the colon the symptoms of fecal impaction are those of partial or complete obstruction i e, obstipation abdominal distention nausea and vomiting If perforation occurs as from a foreign body compressed air bougie or sigmoidoscope symptoms of shock and peritonitis usually ensue

TREATMENT

Foreign bodies originally in the rectum may ascend into the pelvic colon and require colotomy Perforation and peritonitis calls for indicated surgical and antibiotic treatment Tetanus antitoxins intravenous Aureomycin and Terramycin should be administered

Perforation of Sigmoid with Scope

If a sigmoidoscope should happen to perforate the sigmoid leave it in place fix it to the buttocks with adhesive and transport the patient to an operating room immediately When the abdomen is opened the perforation can be easily located and repaired Without the sigmoidoscope in place it is most difficult to locate the point of perforation Deposit 1 000 000 units of penicillin in abdominal cavity before closing Combiotics intravenous Aureomycin and Terramycin should be administered as needed

Chapter 36 STOOL ANALYSIS

THOUSANDS die yearly of far advanced neglected carcinoma of the stomach and colon. A semiannual examination of stools for occult blood would have suggested the further need of x-ray examination, which might have revealed malignant lesions of the intestinal tract when surgery was still curative.

To ignore information revealed by the stool is illogical and negligent, comparable to ignoring information by urinalysis. Digestive residues give information as to the normality or abnormality of the vital organs associated with food digestion. A patient complaining of flatulence may have abnormal amounts of starch granules and fermentation indicating deficient pancreatic enzymes.

The presence of excessive connective tissues without gross or chemical blood suggests a gastrogenic diarrhea. Amebic ova in the stool may suggest the cause of a persistent diarrhea. Amebic cysts or trophozoites may explain the etiology of a chronic pruritus ani.

A patient complaining of nervous instability and weight loss may have a parasitic or protozoan infection.

The following chart outlines the various considerations and examinations involved in complete stool analysis. Each of these items will be considered in detail in the following pages.

Stool Analysis Chart

1. MACROSCOPIC EXAMINATION
   - Color
   - Odor
   - Form
   - Consistency
   - Blood
     - Upper intestinal (black usually)
     - Rectal (red)
   - Pus
   - Mucus
   - Food residues
   - Parasites
2. MICROSCOPIC EXAMINATION
   - Vegetable fibers
   - Starch granules
   - Muscle fibers
     - Striated
     - Nonstriated
   - Fats
     - Neutral fat
     - Fatty acid crystals
     - Soaps
   - Epithelial cells
   - Pus cells
   - Parasitic ova
   - Intestinal sand
   - Crystals

3 CHEMICAL EXAMINATION
Reaction
Hydrogen ion concentration
Blood (occult)

4 INTESTINAL FLORA EXAMINATION (Gram stain)
Percentage of gram negative bacteria
Percentage of gram positive bacteria

NORMAL AND ABNORMAL FINDINGS IN THE STOOL

I MACROSCOPIC EXAMINATION

Color

Normal—The normal color of stool is light to dark brown owing to the decomposition of bacteria and the presence of urobilin Milk or butter fat diet causes a light brown to yellowish stool Meat diet produces a darker brown color while cocoa and chocolate produce a dark gray appearance Drugs such as iron and manganese give a dark greenish black color bismuth gives dark brown or black calomel green santonin rhubarb and senna give varying shades of yellow and brown

Abnormal—Acholic (clay-colored) stool is due to an absence of bile pigments and abnormal fat composition and may be caused by an obstruction to the bile passages by deficient secretion due to an incomplete obstruction or by deficient liver function Clay-colored stools may also occur in tuberculosis peritonitis sprue and pancreatic diseases Tarry stools may be caused by gastric upper intestinal or colon hemorrhage while bright red or blood-streaked stools are most commonly caused by a lesion in the lower sigmoid rectum or anus

Odor

Normal—Normal stool is odorous owing to the presence of indol skatol and carbonic gases Diet determines the odor to a great extent it being observed that a meat diet causes an increase in the odor while a vegetable or milk diet causes a decrease in odor

Abnormal—Sour-smelling stools becoming frothy and bubbly on standing are due to carbohydrate fermentation Putrefactive odor is caused by an excessive amount of protein undergoing decomposition Excessive putrefaction causes an ammoniacal stench Rancid odor is produced by an excess amount of fat Foul odor of stools follows gastro intestinal hemorrhages Pungent penetrating and ammoniacal odor

appears in protozoan infections A foul stench is usually noted in malignancy, syphilitic ulceration, and dysenteries

Form and Consistency

Normal —Normal stool is sausage shaped and soft

Abnormal —Following laxatives and cathartics stool is generally mushy and liquid Persistent constipation leads to hard stools Scybalum (single fecal masses, hard or impacted) or the baled hay type may result from rectal dyschesia and spastic constipation Anal tumor, pectenosis lymphogranuloma inguinale stricture, and spastic colon produce flat tened *ribbon or pencil like feces of small caliber* Fermentative stools are generally mushy and contain large amounts of gas bubbles and undigested starches

Quantity

Normal —Normal stool varies in quantity with diet and function there is usually about 150 Gm (4 oz) in 24 hours Vegetable diets produce an increase in the above amounts

Abnormal —In constipation the amount evacuated may be about one *half normal, with large residues accumulating in the colon and rectum* Gastric achylia bile duct obstruction, pancreatic disease intestinal enteritis, and tuberculosis peritonitis increase considerably the quantity of stool evacuated in 24 hours

Visible Blood

Abnormal —Blood in the feces or rectum may be caused by internal hemorrhoids fissure in ano polyp polyposis polypoidosis malignancy, proctitis, and ulcerative colitis In fissure, blood streaks the feces and is noted on the toilet paper In bleeding *hemorrhoids the toilet water* will be colored red In malignancy, blood and mucus are present In dysentery, *blood and fluid stool* are intimately mixed whereas in polyposis slimy bloody mucus is ever present Tarry stools are generally produced by a bleeding lesion in the stomach duodenum intestine or upper colon See chemical examination for occult blood

Visible Pus

Abnormal —Visible pus is always indicative of an inflammatory process in either the colon or the rectum *Draining pelvic* prostatic, or

perirectal abscesses specific dysenteries of the bacillary group, idiopathic ulcerative colitis secondary infection of an amebic invasion malignancy strictures benign ulceration gonorrhea of the rectum and fistulae will reveal varying amounts of pus

Visible Mucus

Abnormal—Noninflammatory mucus such as is found in so-called mucous colitis or spastic colon presents ribbons, flakes and occasionally whole casts of the bowel wall unmixed with the feces usually accompanied by colic and vague abdominal discomfort Occasionally the mucus is blackish or brownish in color and jelly like in consistency Inflammatory mucus is characterized by the presence of blood and pus corpuscles *Small amounts intimately mixed with feces indicate* small intestinal involvement Large amounts not well mixed with fecal masses indicate large bowel inflammation Bile tinted mucus suggests the small intestine as its source Stools composed entirely of mucus and streaked with blood indicate the varying dysenteries ileocolitis and intussusception In ulcerative proctitis purulent mucus is generally characteristic

Food Residues

Normal—Grossly there can be detected a few muscle fibers small amounts of connective tissue cellulose particles fruit pits skins and vegetable residues

Abnormal—Unusual amounts of residue indicate a rapid passage through the gastro intestinal tract Excessive amounts of muscle and tendon fibers suggest intestinal disturbances Potato particles indicate pancreatic disease or insufficiency Clay-colored stool or fatty scum on the upper layer of triturated feces suggests disturbances of the bile passages and pancreas

Parasites

Intestinal parasites are very common in the United States and Europe although some types are limited to the tropical countries Under macroscopic observation worms or their segments are visible Segments of the pork and beef tapeworm may be passed with the feces or separately

Varying types of intestinal parasites account for unusual digestive disorders, obscure nervous manifestations and secondary anemas

Protozoa—Endamoeba histolytica, Endamoeba coli Balantidium coli, Endolimax nana Giardia lamblia Chilomastix mesnili, Trichomonas intestinalis

Parasitic Worms—*Nematodes* Ascaris lumbricoides (round worms), Oxyuris vermicularis (pinworms) Ancylostoma duodenale (hookworm), Trichuris trichiura (whipworm) Trichinella spiralis (trichina) Strongyloides stercoralis *Cestodes* Taenia saginata (beef tapeworm), Taenia solium (pork tapeworm), Diphyllobothrium latum (fish tapeworm) Hymenolepis nana (dwarf tapeworm source rats and mice) *Trematodes* (flukes) Fasciola hepatica (liver fluke) Opisthorchis felineus Fasciolopsis buski Paragonimus westermani (lung fluke) Schistosoma haematobium, Schistosoma mansoni

2 MICROSCOPIC EXAMINATION

Normal Food Residues

Vegetable fibers, vegetable cells vegetable hairs Starch granules recognized by their staining reaction with Lugol s solution Potato starch granules are colorless, translucent masses Muscle fibers are yellow and when poorly digested appear as short, transversely striated cylinders with rather squarely broken ends

Fats are present in three groups neutral fat fatty acids and soaps *The fats and fatty acids stain characteristically with sudan III* Connective tissue appears as colorless and yellowish threads with poorly defined edges and indefinite longitudinal striations Elastic fibers are definite in outline and anastomose A few epithelial cells are generally present cylindrical in type and usually in various stages of degeneration (fig 123)

Abnormal Food Residues

Starch—Pathologic starch digestion indicates a rapid passage through the gastro intestinal system possible pancreatic enzyme deficiencies enteritis or functional disturbances characterized clinically for example by inability to gain weight Microscopically starch and potato granules stained with Lugol s solution appear bluish or purplish with many groups of yeast molds sarcinae and bacilli (fig 124)

Connective Tissue and Muscle Fibers—Physiologically it has been observed that connective tissue is digested in the stomach whereas

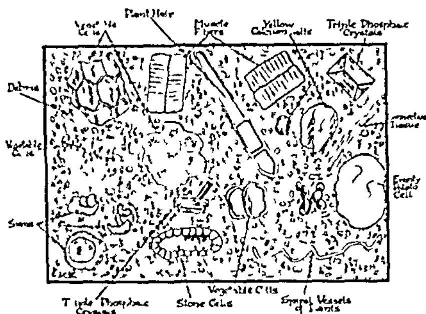


Fig. 123 Normal Stool Findings

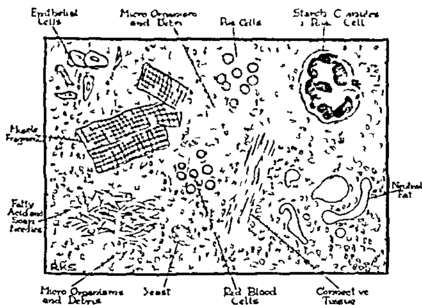


Fig. 124 Pathologic Stool Findings

muscle fibers are digested in the small intestine With the presence of an increased amount of connective tissue in the feces an achylia gastrica should be considered, possibly caused by a carcinoma of the stomach, pernicious anemia, gastric catarrh, or functional deficiency, or increased gastric motility may be a factor in producing an increased amount of connective tissue in the stool Presence of abundant muscle fibers indicates a disturbance in the small intestine for example, exaggerated peristalsis, absence or insufficiency of pancreatic enzymes, or a primary absorptive disturbance

Fat—Only a large increase in fats can be considered pathologic Abnormal fat residues (steatorrhea) are recognized by a neutral fat as light colored or yellowish drops and scales Fatty acid crystals are long thin finely curved, and arranged in rows Soap appears as yellow amorphous flakes or rounded masses Clinical conditions to be considered are those involving the bile passages, pancreatic diseases and disturbances of intestinal digestion

Epithelial Cells—Marked excess of epithelial cells indicates an intestinal catarrh The form of the cells, however, gives no clue as to their source The presence of large groups of squamous cells indicates a lesion in the anal canal such as carcinoma, proctitis ulceration or stricture

Pus Cells—The presence of pus cells is always pathologic and indicates some form of proctitis benign ulcerations dysenteries specific or nonspecific draining pelvic or perirectal abscesses internal blind rectal sinuses fistulae, and crypts

Ova and Flagellates—Microscopically feces may contain characteristic ova of the nematodes, cestodes trematodes and protozoal flagellates and their cysts Detection of the ameba protozoa in acute amebic dysentery or their cystic form in chronic amebiasis is diagnostic The detection of ova in feces and recognition of their form shape and size leads to identification of the parent host and the diagnosis of a specific parasitic infection The presence of flagellates may indicate the underlying etiology of some of the chronic diarrheas

Blood—Unchanged red blood cells are present in a bleeding lesion in the colon sigmoid rectum or anus In amebic dysentery clumping of red blood cells is characteristic In ulcerative colitis large amounts of pus cells are ever present Presence of excess of eosinophils is indicative of intestinal allergy

Crystals—Varying forms may be found but few have any actual

significance The slender needle like crystals of fatty acids and triple phosphates may be present calcium oxylate type occurs after ingestion of vegetable cholesterol crystals phosphate and bismuth suboxide crystal following bismuth salt administration Charcot Leyden crystals are present with intestinal parasites yellowish or brown needle like or rhombic crystals of hematoidin may be found after bowel hemorrhages Clumps of fatty acid crystals are suggestive of chronic amebiasis

Intestinal Sand —This is present as a sediment following fruit and vegetable ingestion Intestinal sand is indicative of mucous colitis and diverticulitis

Concretions —Gallstones may be found after an attack of biliary colic Other masses probably present are fruit seeds enteroliths and foreign bodies

3 CHEMICAL EXAMINATION

Occult Blood —The chemical test for occult blood is of great value in determining a bleeding lesion in the gastro intestinal system Gastric or duodenal ulcer carcinoma of the stomach and carcinoma of the small intestine and colon may be detected in their silent or incipient stage Patients should be on a meat fowl fish free diet for three days before the stool is examined Bleeding from the mucous membrane in the mouth upper respiratory passages anus or rectum should be ruled out for a reliable test Traces of blood are present in polyposis and intestinal parasites To avoid confusing anorectal from upper colon and intestinal bleeding it is helpful to examine a portion of the center of stool specimen

Bile

Bile —Chemical tests may be performed for the presence or absence of urobilin (normal fecal bile pigment) or the unchanged biliary pigment (bilirubin)

Pancreatic Ferments —Normally amylase and trypsin may be detected Abnormally in pancreatic disease or pancreatic duct obstruction these ferments are diminished or absent

Carmine Test for Motility —The length of time required for the passage of material through the alimentary canal is obtainable by the administration of 10 grains of carmine which gives to the intestinal contents an easily recognizable red color If the stool is red within 24 hours

after ingestion of the carmine, no constipation exists By noting the color of the stool in subsequent bowel movements, one can determine the existence and degree of red appearing stools which after 24 hours is indicative of constipation

Reaction Hydrogen ion concentration pH —The pH is an accurate determination of the degree of acidity or alkalinity of the stool and is expressed as follows pH 7 0 is neutral, above 7 0 it is alkaline, and below it indicates acidity It has been observed and reported by investigators that patients with eczema, dermatitis, flatulence, and specific ulcerative colitis show acid reactions between 5 5 and 6 2 A predominance of actively fermenting strains of the coli group is present Stools with a reaction of 7 2 and higher indicate a putrefactive flora and intestinal stasis

4 INTESTINAL FLORA EXAMINATION

Types of Intestinal Bacteria

Nonaciduric bacteria

Coli like bacilli

- B coli
- B proteus vulgaris
- B aerogenes
- B fecalis

Welch s bacilli

Anaerobic and aerobic spore bearers

- B putrificus
- B butyricus

Cocci

Strep hemolyticus viridans fecalis, micrococci and diplococci

Aciduric bacteria

- B Acidophilus
- B Bifidus
- B Bulgaricus

Types of Intestinal Flora

Aciduric Stool —This is the most favorable type with a large percentage of B acidophilus and a small percentage of colonlike organisms

Semiaciduric Stool.—This type has less aciduric bacteria and more colon-like organisms. This is the second best type of intestinal flora.

Mixed Flora.—This is a mixture of all types of intestinal bacteria.

Semiputrefactive Stool.—This contains large amounts of B. coli, small amounts of B. welchii, small amounts of B. acidophilus, and a dominance of putrefactive bacteria.

Putrefactive Stools.—There is a predominance of the B. coli group. Spores are present, and B. acidophilus is absent. This is the most unfavorable type of intestinal flora.

Herter's Classification of Putrefactive Stools

Indolic Type.—Excessive amounts of gram-negative organisms, with marked clinical indicanuria.

Saccharobutyric Type.—Characterized by a predominance of gram-positive organisms.

Mixed Type.—Consists of a combination of the above two varieties and is the most common type.

Appendix

AUTHORS' TREATMENT DRAWER, SOLUTIONS AND DIETS IN PROCTOLOGIC WORK, INTESTINAL PARASITES

This chapter has been added to afford the busy physician and surgeon access to proctologic diets, to give him a description of the proctologic office treatment drawer used by the authors, and to describe not only the preparation of solutions for the injection treatment of hemorrhoids but other helpful prescriptions used in our proctologic practice (fig 125 shows treatment drawer)

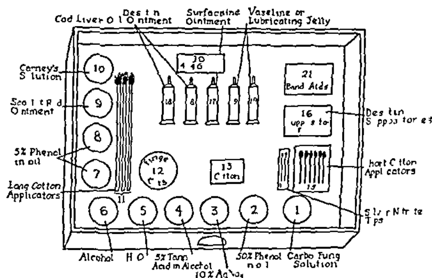


Fig 125 The Authors' Treatment Drawer

Shows the arrangement of solutions ointments suppositories cotton Q tips lubricating jelly finger cots etc., as used in each treatment room

AUTHORS' TREATMENT DRAWER CONTENTS

1 *Carbo Fung* (Carbo Fung Co)—Used for the treatment of moist pruritus fungus pruritus cryptitis papillitis and postoperative infected wounds

2 50% *Phenol in Oil Solution* —(Same as stock solution see page) Used to cauterize postoperative indolent wounds fissures and posterior raphae skin cracks

3 10% *Silver Nitrate* —Used mainly for pruritus ani followed by tannic acid solution Also used to swab wounds postoperatively to stimulate granulation tissue

4 5% *Tannic Acid in 90% Alcohol* —Used in pruritus ani mainly as a topical application immediately after the silver nitrate solution

5 *Peroxide Solution* —Used to clean perianal postoperative wounds in preparation for other medicinal applications

6 *Alcohol* —To clean used ointment pile pipes

7 and 8 5% *Phenol in Oil* —Used to inject hemorrhoids

9 *Scarlet Red Ointment* (5%) —Used for stubborn postoperative wounds and for the nonsurgical treatment of anal fissures Stimulates granulation tissue and healing This is the best medicament for this purpose the authors have found to date

10 *Carnoy s Solution* (see page 268) —Used to swab pilonidal cyst wounds and indolent postoperative areas

11 12 *inch Cotton Tipped Applicators* —Used in sigmoidoscopic examination

12 *Finger Cots* —We use rubber finger cots for examination and treatment in preference to gloves They are inexpensive and disposable

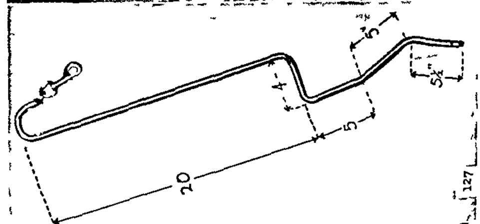
13 *Cotton* —For cleaning and wiping soiled perianal areas in preparation for treatment

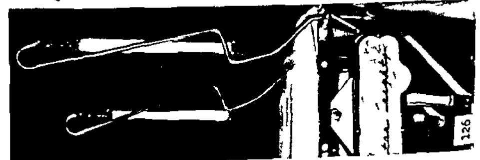
14 *Silver Nitrate Sticks* with a tip of silver nitrate on the end of a stick is used to cauterize wild postoperative granulation tissue and to control small bleeding points

15 *Cotton Applicators* —Used to apply all solutions and ointments mentioned above

16 *Desitin Suppositories* (Desitin Chemical Co) —Used to insert after cryptitis papillitis and fissure treatments Promotes healing and allays anal discomfort


128


20
5
4
5"
5½"
127


126



FIGS. 126-129. AUTHORS' OPERATING STIRRUPS

An operating stirrup used by the authors for many years that helps to make rectal surgery in the lithotomy position easier for the patient, the anesthetist and the surgeon (Fig. 126). Figure 127 is a photograph of the actual stirrups with dimensions for each section. The material used to make this stirrup is the same as that used for any other stirrup. Figure 128 shows the lateral view with the thigh flexed and the leg brought upward out of the way of the assistants. Figure 129 shows the front view. Note the ample head and side room for each assistant besides a place for the surgeon.

17 *Surfacaine Ointment* (Eli Lilly & Co) —Used with "pile pipe The pipe is inserted into the anal canal and moved with gentle pressure from anterior to posterior When this is *repeated daily in the hospital* following rectal surgery and three times weekly *in the office at first* and twice weekly until healing is complete, *finger dilatation is seldom* necessary

18 *Desitin Ointment* (Desitin Chemical Co) —Used routinely as *an application* to postoperative wounds Promotes healing

19 *Vaseline or Pentacresol Lubricating Jelly* or Instrument Lubricant —Used as a lubricant for instruments and digital examination

20 4 x 4 *Gauze* to apply to healing postoperative wounds after treatment has been administered A piece of absorbent cotton (13) may also be used for the same purpose

21 *Band Aids*

HEMORRHOIDAL INJECTION SOLUTION (PREPARATION)

5% PHENOL IN OLIVE OIL

Step #1

Stock solution (50 per cent phenol in Wesson oil) Melt in a hot water bath 1 pound of phenol crystals Add an equal amount of Wesson oil by volume Add to the above *20* gr of menthol to each ounce of the 50 50 solution

Step #2

Stock Solution (50 50)	30 0
Pure olive oil	270 0

This makes 300 cc of a 5 per cent solution of phenol in Wesson oil

Note Save the balance of the stock solution for the next batch of 5% solution

INSTRUMENT LUBRICANT

Rx	Vaseline	120 0
	Menthol	2 0
	Mix together	

RECTAL SUPPOSITORY (FOR PAIN AND SPASM)

Pantapon	gr. 1/3
Extr. Belladonna	gr. 1/4
Cocoa Butter q.s. ad Suppository	

or

Medicone Suppositories

or

Anusol Suppositories

or

Desitin Suppositories

RECTAL TENESMUS

Bismuth Subgallate	3 ounces
Mucilage of Acacia	10 ounces

Sig. Inject 3 ounces rectally once a day.

TO DEODORIZE BROKEN DOWN CANCER TISSUE

Swab rectal tumor with formaldehyde 10 to 30 per cent or instill 5 per cent urea in tragacanth as a retention enema.

TO TOUCH UP ULCERS AND FISSURES

50% Phenol in Wesson Oil

or

Silver Nitrate	0.1
Balsam of Peru	1.0
Vaseline	10.0

Mix together.

or

Comp. Tr. of Benzoin	1 ounce
Bichloride of Mercury	1 grain

PRURITUS ANI

Enemas

1. 1 dram of 10 per cent silver nitrate to a quart of warm water nightly. Or
2. Menthol 20 gr.
   Castor Oil 1/2 pint
   Sig. Instill 1 or 2 drams in rectum nightly.

Lotions (for wet pruritus)

Red Iodide of Mercury	2 grains
Potassium Iodide	2 grains
Alcohol (70%)	30 cc
Mix together	

or

Calamine Lotion

CONSTIPATION DIET

For the treatment of atonic constipation, the following diet is recommended Immediately upon arising drink the juice of two oranges or one half grapefruit or a glass of tomato juice, to which has been added an equal amount of cool water unless otherwise advised

Breakfast—Fruit raw or stewed, sweet or subacid fruits in season (choice of one or two of the following—apples apricots, bananas, blackberries, dates figs, grapes [sweet], huckleberries cantaloupe, peaches pears, plums prunes, raisins, raspberries, strawberries, watermelon)

Cereals—choice of the following All bran, barley, cracked wheat New oats, Rolled oats, Post bran, Kellogg s bran, Shredded wheat, Pep Wheatena Krumbles oatmeal, Redi-cooked oats whole rice, farina

Beverages—choice of milk Kaffee Hag or coffee

Bread—dry toast and sweet butter (whole wheat bread and bran bread preferred)

Lunch or Dinner—Precede the meal by drinking two glasses of cool water (preferably ten minutes before the meal)

Salad composed of lettuce as a base and one or two raw vegetables from the following cabbage, celery cabbage, celery, tomatoes, carrots turnips kohlrabi, rutabagas, radishes cucumbers cauliflower

Mayonnaise Thousand Island or French dressing made of olive oil or salad oil and pure lemon juice (no vinegar)

Soup may be added if desired Select from the following bean soup beef broth bouillon celery soup, chicken broth, cream soups fruit soup mutton broth pea soup rice and vegetable soups

Vegetables (cooked)—select any two of the following asparagus egg plant, spinach artichokes, cauliflower, carrots, celery, chard, cucumbers parsnips greens kale Brussels sprouts onions, watercress beets tomatoes okra, parsley peppers beans corn, lentils pumpkin squash string beans sweet potatoes turnips, peas potatoes

Cheese—fresh cottage or cream cheese

Meat may be added to the diet once a day unless otherwise advised (On these days avoid eggs) When eating meat limit yourself to broiled lamb chops chicken broiled steak or fresh fish (never fried) Sea foods are putrefaction formers and should be omitted

Eggs may be substituted for meat Two eggs prepared as follows boiled poached shirred (soft) and egg custard

Two slices of bread and butter (toasted) preferably whole wheat bran or rye

Stewed fruits such as cranberries currants applesauce quinces rhubarb can be used when eating meat

Desserts—puddings custard ice cream jello plain cake pies without the crust fruits (as listed above)

General Dietary Aids—Omit any of the above items if they cause distress (Then consult your doctor) Drink at least six glasses of water daily Avoid extremely hot or extremely cold drink Remove as completely as possible from diet—tea pepper vinegar fried foods and condiments A good substitute for refined sugars is honey and Karo syrup Take sparingly of pastries candies, and soft drinks Chew food thoroughly eat slowly and at regular hours Do not overeat leave the table with a slight feeling of hunger Relax for thirty minutes after each meal Establish the habit of going to stool regularly immediately after each meal or at least after breakfast and dinner as eating stimulates downward peristalsis causing the rectum to be filled and making this the ideal time to establish the habit of having a bowel movement A footstool under the feet while at stool helps to place the patient in a more natural position for defecation

BLAND DIET

Immediately upon arising drink the juice of two oranges or one half grapefruit or a glass of tomato juice or grape juice to which has been added an equal amount of cool water (Modifications of the above should be given in ulcerative colitis)

Breakfast—Farina cream of wheat corn meal Rolled oats, corn flakes puffed cereals Stewed fruits may be eaten once or twice a day All roughage and skins must be discarded In winter the dried pared fruit may be used for stewing (use sugar sparingly) Apples may be baked Applesauce is more nutritious if made from unpared and uncored apples and strained later It may be diluted with sago or tapioca

to add to its palatability Canned fruits such as pears and peaches are permitted

Coffee in moderation (if possible substitute Kaffee Haag), chocolate cocoa, tea or milk

White bread (toasted dry) or Zwieback, and sweet butter

Lunch or Dinner—Precede the meal by drinking two glasses of cool water *(preferably ten minutes before the meal)* omit in ulcerative colitis

Broths *bouillons cream* soups

Purees of peas, beans, lentils Lima beans (all skins should be removed by *passing through a ricer)*

Small portions of steaks, lamb chops, fish, chicken, squab (broiled only—avoid the fibrous parts and gristle)

Rice, potatoes (boiled, baked, mashed hashed brown), sweet potatoes, and hominy Well-cooked cauliflower tops with cream sauce, asparagus tips Macaroni or spaghetti cooked soft together with a little cheese or cream sauce

Fresh cottage cheese or cream cheese

Eggs may be added to diet not more than three times a week two eggs prepared as follows soft boiled, poached, custard White bread (toasted dry) or Zwieback, and sweet butter Simple puddings, custards plain ice cream, jello plain cake *canned or stewed fruits*

Coffee in moderation, chocolate, cocoa tea, or milk

General Dietary Aids—Drink at least six glasses of water daily Chew food thoroughly Eat slowly and at regular hours

Avoid cantaloupe and other melons shredded wheat biscuits bran coarse breakfast foods, smoked or canned fish, pork veal, crab lobster, green vegetables raw fruits salads sugar in concentrated forms condiments, soft drinks fried foods, mushrooms nuts, raisins, and prunes *Avoid eating between meals Do not* eat when mentally disturbed or when in a hurry Avoid extremely hot and cold drinks Do not overeat Leave table with a slight feeling of hunger Relax for thirty minutes after each meal (Best position would be lying on right side with pillow under head)

AMEBIASIS DIETS

Chronic Amebiasis—High protein low carbohydrate diet
Amebic Dysentery—Bland high protein diet
Amebic Hepatitis—Low fat, high protein and high carbohydrate diet

INTESTINAL PARASITES

With the exception of the occasional pinworm case, patients with intestinal worms are not commonly seen in a proctologic practice. However, the following recent considerations in the diagnosis and treatment of these intestinal parasites are included for possible reference.

Usually *the patient comes to the physician with the story that he or she has passed a worm.* If they bring the specimen along, one can quickly differentiate it from mucous casts which resemble intestinal parasites. A small piece of the mucous cast placed under the microscope reveals the irregular formation of the mucous casts and many mucous cells. Worms, on the other hand, are fleshy, complete, round or flat and regularly segmented, and can be divided only with a knife or scissors. The simplest diagnosis is made from the passed segments of worms. In the case of pinworms, the diagnosis is usually made by seeing the moving small thread around the anus and in the anorectum. The stool specimen may also reveal the eggs.

If no specimen of a worm is brought to the office and worms are suspected, a purged stool specimen is necessary to demonstrate the ova. Beef and pork tapeworm ova are difficult to find and may require several purged specimens. Fish tapeworm eggs, however, are plentiful and easy to locate in a stool specimen. Any clinical or hospital laboratory will aid in making the diagnosis.

In order to determine whether the treatment has been successful, repeated stool examinations should be requested. The idea of looking for the head of the worm has been discarded by most technicians because the patient may harbor several worms. Besides, the head is soft and small, is easily crushed, and is difficult to detect in a large quantity of purged stool.

It is recommended by experienced investigators that three stools be examined three days apart, beginning five days after administration of the worm treatment. If no eggs are found, another specimen should be examined in three months. If this is negative, the patient may be declared free of worms.

FISH AND BEEF TAPEWORMS, GIARDIA LAMBLIA AND TRICHOMONOS HOMINIS

In the past, oleoresin aspidium, carbon tetrachloride, and hexyl resorcinol have been used for the treatment of intestinal worms with

to add to its palatability Canned fruits such as pears and peaches are permitted

Coffee in moderation (if possible substitute Kaffee Hag), chocolate cocoa, tea, or milk

White bread (toasted dry) or Zwieback, and sweet butter

Lunch or Dinner—Precede the meal by drinking two glasses of cool water (preferably ten minutes before the meal) omit in ulcerative colitis

Broths, bouillons cream soups

Purees of peas, beans, lentils, Lima beans (all skins should be removed by passing through a ricer)

Small portions of steaks lamb chops, fish, chicken squab (broiled only—avoid *the fibrous parts and gristle*)

Rice, potatoes (boiled baked mashed, hashed brown), sweet potatoes, and hominy Well-cooked cauliflower tops with cream sauce asparagus tips Macaroni or spaghetti cooked soft together with a *little* cheese or cream sauce

Fresh cottage cheese or cream cheese

Eggs may be added to diet not more than *three* times *a* week *two* eggs prepared as follows soft boiled, poached custard White bread (toasted dry) or Zwieback, and sweet butter Simple puddings custards plain ice cream, jello, plain cake, canned or stewed fruits

Coffee in moderation, chocolate cocoa tea, or milk

General Dietary Aids—Drink at least six glasses of water daily Chew food thoroughly Eat slowly and at regular hours

Avoid cantaloupe and other melons, shredded wheat biscuits, bran coarse breakfast foods, smoked or canned fish pork, veal crab, lobster, green vegetables raw fruits salads, sugar in concentrated forms, condiments soft drinks fried foods mushrooms nuts raisins and prunes Avoid eating between meals Do not eat when mentally disturbed or when in a hurry Avoid extremely hot and cold drinks Do not overeat Leave table with a slight feeling of hunger Relax for thirty minutes after each meal (Best position would be lying on right side with pillow under head)

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FISH AND BEEF TAPEWORMS GIARDIA LAMBLIA AND TRICHOMONOS HOMINIS

In the past oleoresin aspidium carbon tetrachloride and hexyl resorcinol have been used for the treatment of intestinal worms with

varying amount of success and occasionally with toxic side effects Hexylresorcinol has been the least toxic, but its effectiveness has been questioned Recently, atabrine and its related derivative acrinal has been used successfully in the treatment of fish tapeworms as well as beef tapeworms It is also excellent treatment for the flagellate intestinal parasites giardia lamblia and trichomonos hominis)

Treatment—At 3 p m the day before specific treatment is started, 1 ounce of magnesium sulfate in water is ingested On the morning of treatment no good is given

The patient is then given 2 tablets of atabrine every 5 minutes for 3 or 4 doses, depending upon the patient's weight The 2 tablets are swallowed with a glass of water containing 6 Gm of soda bicarbonate (to prevent nausea and vomiting) After this water or fruit juices are allowed freely Two or three hours later another dose of magnesium sulfate (1 ounce in water) is given The segments are expelled alive and stained yellow

If patients are considered sensitive to medication, pulverized and dissolved atabrine (same dosage) can be passed through a duodenal tube One must be certain that the tube is in the duodenum by demonstrating *alkaline* bile stained material aspirated from the duodenal tube The duodenal tube is flushed a few minutes after the drug has been administered and then withdrawn The Matzner polyethylene duodenal tube is preferrable

Hexylresorcinol in crystalline emulsion form has also been used successfully by being passed directly into the duodenum with the aid of a duodenal tube No other adjunct preparation is necessary

PINWORM THREAD WORM, OR SEAT WORM (OXYURIASIS)

This type of parasite tends to spread from person to person frequently infecting an entire family This is important to keep in mind because the treatment to be effective should be directed to all members of the family simultaneously

The female thread worm can frequently be seen crawling out of the anus at night Proctoscopic examination usually reveals the pinworm crawling around in the anorectum The resulting pruritus ani frequently causes nervousness, insomnia, and debility

The diagnosis is most frequently made by seeing the moving pinworm

A piece of scotch tape applied around the anal orifice on retiring will usually catch pinworms and help establish the diagnosis If these simple methods are not successful a stool specimen should be sent to the labora tory to help locate the pinworm eggs

Treatment.—Our favorite medicinal treatment is Terramycin for 7 days administered to all members of the family at the same time Dosage as follows Under 5 years of age—125 mg q i d , 5 to 10 years of age—250 mg q i d daily over 10 years of age—500 mg q i d

Home and Personal Care Instructions

The following printed instructions are given to the patient as part of the treatment

Wash the hands often especially before meals and smoking Keep fingernails short and well scrubbed Heavy cotton gloves and snug cotton drawers are to be worn at night particularly if the patient is a child Each person should have his own bed linen soap wash cloth towel napkin nail brush toothbrush and shaving brush Do not ex change clothing Sleep alone until the treatment is finished

Soiled bed linen (folded carefully without shaking) the cotton gloves the drawers all other underwear napkins towels and wash cloths are boiled each morning

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